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## BRANCH OFFICES

GLASGOW : 87, Union Street . . . . . Central 4646  
NEWCASTLE-ON-TYNE : 21, Mosley Street . . . . . Newcastle-on-Tyne 22239  
MANCHESTER : Century House, St. Peter's Square . . . . . Central 3101  
BIRMINGHAM : 90, Hagley Road, Edgbaston . . . . . Edgbaston 2466  
LEEDS : 70, Albion Street . . . . . Leeds 27174

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## The Demand for an Inquiry into Railways

AS we recorded in our last week's issue, one of the features of the debate on railway charges which took place in the House of Commons on April 9 was a suggestion put forward by the Opposition for an inquiry into the general operation and efficiency of the railways. There was a good deal of support for the suggestion, and the Minister said that his mind was not closed on the matter. The proposal is likely to be pressed with some energy when the plans for increasing railway charges are again discussed. The hearing of the passenger charges scheme will afford critics of the railways an opportunity for airing their views, and there can be no doubt that the recent 10 per cent. advance in railway freight charges has brought home forcibly to industry that drastic measures are required to achieve transport solvency in this country. What is not always appreciated is that railway charges have lagged far behind the general advance in prices which has been going on since 1939. The fact that the railways are statutorily bound to adopt—except in special cases, such as the recent application to the Minister—a protracted procedure involving public hearing and investigation before a general increase in charges can be applied, places them at a considerable disadvantage in relation to other forms of industry, and tends to focus attention on any change in the railway level of charges. Whether the time is opportune for an inquiry into the railways is very debatable. In our view it is too early for such an investigation to serve any useful purpose. The reorganisation of the railways into a nationalised whole has been in progress rather less than three and a half years. When the regrouping of railways took place under the 1921 Act it was more than ten years in some cases before the benefits of reor-

ganisation began to be fully apparent. There is a very real danger, too, that any investigation at present would involve political bias. It would be difficult, indeed, to select competent personnel for such an inquiry who have not made clear their ideological views one way or another on the subject of a nationalised railway system. There may be grave doubt as to whether, at a time when the problems facing the railways are as acute as they have ever been, it would be wise or reasonable to divert the minds and energies of railway officers from their primary task of improving the efficient operation of the railways.

## Mr. John Elliot's Visit to America

ON Wednesday last Mr. John Elliot, Chairman of the Railway Executive, left England for a short visit to the United States. There he is to meet the executive heads of several of the largest American railways, as well as inspecting the British Railways organisation in the United States. There is no doubt that while he is there Mr. Elliot will study the organisation of the principal American railways. There has been a good deal of criticism of the functional system of management adopted on British Railways, and it will be an opportunity for comparing that system with the departmental management under Vice-Presidents which obtains in the United States. Mr. Elliot will be able to make an assessment as to whether there is greater autonomy for divisional officers and others under the American system. In this country at the present time there is no equivalent to the boards of directors which in America still provide the top level of private enterprise administration. Whatever conclusions Mr. Elliot may reach, and allowing for all the differences between British and American railway circumstances, the visit shows a commendable willingness to investigate all sources of inspiration in an attempt to effect organisational improvements.

## British Industries Fair

KEENNESS among overseas buyers is reported from the British Industries Fair which opened in London and Birmingham on Monday. This is the fifth B.I.F. since the war and for the Festival of Britain year the exhibition has been planned on an even more ambitious scale. There is further evidence of increasing appreciation of changed market conditions abroad, though at the present time shortages of materials and the heavy demands of the rearmament programme are the main difficulties with which British manufacturers are faced, rather than the earlier problem of coping with overseas demands. Heavy industry is represented at Castle Bromwich as usual and this section again provides an excellent opportunity for studying recent progress in the development of engineering products in many fields. Sir Hartley Shawcross, President of the Board of Trade, at the Mansion House luncheon held to inaugurate the B.I.F. on April 30, said that in 1951 the Fair marked the greatest industrial effort this country had been called on to make in times of peace.

## British Act Needed for G.N.R.(I.) Acquisition?

THE "difficulties" in the acquisition of the G.N.R.(I.) jointly by the Belfast and Dublin Governments to which Mr. McCleery, Northern Ireland Minister of Commerce has referred, as recorded in our April 27 issue, may necessitate the passing of an Enabling Act in the British House of Commons, according to *The Irish Times*. As some of the company's stockholders live in Britain, it is not clear whether the Northern Ireland Government can legislate compulsorily in respect of property which it does not own. If the British Government were asked to pass an Act conferring additional powers on the Belfast Government, there would be an opportunity for the stockholders to raise again, at Westminster this time, the contentious matter of the acquisition terms. Such an Act would not remove possible friction between Belfast and Dublin after the establishment of joint control of the railway. Who would decide if one Government should de-

cide to open or close a section and the other objected on the grounds of possible loss to it? To what extent would the North have to share the loss, if a railway or road service in the South should cease to be profitable? These are only two of the problems which will confront the two Governments after the difficulties of the acquisition itself. The latest moves to assist the company through its financial crisis pending the passing of legislation for its acquisition are an order by the Dublin Government guaranteeing borrowings by the company up to £200,000 and a nominal supplementary vote by the Belfast Government. These measures will stave off the threatened issue of dismissal notices to 1,200 employees and a reduction in train services by about one-third.

### Ulster Transport Authority

**T**HE first stage in the reorganisation of the administration of the Ulster Transport Authority, made necessary by the vacancy on the board occasioned by the Chairman, Mr. Frank Pope, becoming a Member of the British Transport Commission, was reached last week. Mr. McCleery, Northern Ireland Minister of Commerce, announced the appointment of Mr. J. Sydney Rogers as temporary Chairman of the Authority. Mr. Rogers, whose appointment is for the remainder of the board's present term of office, until September 1 next, is at present a Member of the Authority and previously has acted as Chairman of the former Northern Ireland Road Transport Board. Since 1948 the management of the Authority, under the Chairman and Members, has been conducted by four Chief Officers—the Chief Comptroller, Chief Engineer, Chief Traffic Manager, and Chief Officer of Special Duties, each with functional responsibility for both road and rail. As from May 1, a new post has been created—that of General Manager—and Mr. J. A. Clarke, who has been appointed to the position, will be responsible for the general operations and conduct of the Authority. Mr. James Courtney, as Chief Engineer of the Authority, will be responsible for civil, mechanical and electrical engineering, and for all technical developments.

### Overseas Railway Traffics

**A**T March 31 Canadian National operating revenues for the current 13 weeks were £47,640,000, a £8,750,000 improvement over the aggregate result for the equivalent period of last year. Operating expenses rose by £6,003,000 to £45,178,000 during the same period, and net revenue was £2,462,000, as compared with a £284,000 deficit in 1950. During March C.N.R. operating revenues were up by £2,599,000 at £17,554,000, and the net revenue was £681,000 higher at £1,704,000. Traffic on the Costa Rica Railway was interrupted by landslides on March 10, and the section involved was still closed at March 31. As a result receipts for March were down by £528,918 at £462,742, though aggregate traffics since July 1, 1950, were £1,242,019 higher at £8,838,481. Dorada traffics again declined in March and on the aggregate were £18,363 lower at £108,108 for the current 13 weeks. During the financial year ended March 31, Barsi Light Railway receipts amounted to £350,745, and were £3,225 lower than for 1949-50. Traffics for March were £3,420 higher at £33,150.

### Argentine Railway Pensions

**T**HE Argentine Government has given assurances about remittance of pensions to ex-employees of the former British-owned Argentine railways. The assurance was linked with the Anglo-Argentine trade pact, and results from representations by the British negotiators. It has decided to give favourable consideration to the renewal of permits for railway pensioners and their widows to live in Britain and to granting fresh permits for pensioners who wish to leave Argentina and settle in Britain. It will issue exceptional authorisations for remittance of railway pensions up to the equivalent of 1,000 pesos (about £25) per month. These authorisations will include remittances which have been held up by the expiry of pensioners' permits to

live in Britain. Remittances of pensions in excess of 1,000 pesos a month will be considered individually. The British Embassy in Buenos Aires will submit to the Argentine Central Bank within 60 days a list of the persons concerned so far as known, and will thereafter inform the Central Bank of other cases as they arise and become known. Remittances will be made at the free exchange rate prevailing at the time of remittance.

### Institute of Transport Congress

**T**HE Institute of Transport has arranged an interesting programme for its annual congress, which this year will be held at Torquay on June 13, 14, and 15 next. The President, Mr. J. S. Wills, will open the proceedings and, after a civic welcome to those attending the congress by the Mayor of Torquay, Sir William Wood, Member of the British Transport Commission and a past-President of the Institute, will read a paper on "Transport Costs and Charges" which will be open for discussion. Another paper to be presented during the congress will be on "Parliament and Transport Problems", by Mr. David Renton, M.P. Among the places which will be visited by members and guests are the locomotive works at Newton Abbot and the works of the Devon General undertaking at Torquay, the works of the Plymouth Transport Department and the Western National Omnibus Co. Ltd., the ocean terminal at Millbay Docks and the Exmouth Junction Works of British Railways. Full provision has also been made for sight-seeing tours for the entertainment of ladies accompanying members. On the evening of June 13 the Mayor of Torquay is holding a reception for members of the congress and on the next evening a reception is being held by the President.

### Railway Development under Nationalisation

**T**ECHNICAL and commercial progress by British Railways since nationalisation were dealt with by Mr. A. E. Hammett, Commercial Superintendent, London Midland Region, in a paper to the Carlisle & District Transport Club on April 20. This paper, which is summarised elsewhere in this issue, describes very clearly the steps taken during the past three years to weld the British transport system into a unified whole, emphasising at the same time the strong influence on commercial development of the search by the technical and operating departments for improved methods, such as the standardisation of rolling stock, through working, merging of locomotive depots, control of freight rolling stock, and so on. British Railways inherited a fine tradition of commercial service from the former main-line railway companies and in this connection Mr. Hammett refers to the development of zonal collection and delivery schemes and fast freight services and describes how the modernisation of terminal facilities and mechanical handling equipment is actively proceeding in consultation with traders and staff. Much is being done also to improve passenger travel. Some train schedules have been speeded up, and, with the progressive overtaking of arrears of renewal of rolling stock and permanent way, this process will continue.

### Electrical Engineering Production

**T**HE effects on electrical engineering production of restrictions on capital expenditure are not confined to power station plant alone. There is a reference in the annual report of the British Electrical & Allied Manufacturers' Association to other directions in which the effects of "standstill" are being felt, notably railway electrification schemes, which the council considers all the more to be deplored in view of the success of the Liverpool Street-Shenfield electrification. With the electrification of other great urban areas, states the report, much of the traffic lost to the roads would be won back, while there would also be the benefits of conservation of coal supplies. Although the outlook is overclouded by the international situation the hope is expressed that in the concentration of the short-term outlook, as exemplified in the *Economic*

Survey for 1951, forward planning of greater railway electrification would not be overlooked. Mr. G. Leslie Wates, Chairman of B.E.A.M.A., referred at the annual meeting to the materials position, which he said was one of the most serious problems facing the industry today. Although electrical exports in 1950 were three times greater in volume than before the war, they would not be able to keep this up without adequate supplies.

### The Engineer, and Harmony between Nations

THE engineer's contribution to international understanding is hampered not only by the variety of languages. More than one language must be learnt in pursuit of wider engineering knowledge. It becomes more difficult for technically developed countries to plan great engineering projects in backward countries where goodwill between the two has declined. Nevertheless, as Mr. C. W. N. McGowan, Chairman of the Metropolitan Branch of the Engineers' Guild showed in an address entitled "How Engineers Can Promote International Understanding," to the Guild in London last night, there are great opportunities for the engineering societies to promote better relations between nations. They should determine where engineering publications now circulate abroad, in what libraries they may be read, where engineering training exists, and where British-trained foreign students are now practising. They should use these data to provide a world-wide distribution of engineering books and journals. In this endeavour the overseas branch of the Guild could help; all its centres could be visualised as foci from which contact could be made with as many engineers as possible within range, irrespective of nationality. In June the Joint Engineering Conference organised by the three major institutions should be an invaluable opportunity of enhancing understanding.

### Aluminium Coaches for London Transport

A STRIKING exhibit at the South Bank Exhibition is the first of 90 light-alloy coaches built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd. for service on the Metropolitan and District lines of the London Transport Executive. In general appearance the stock, which is fully described elsewhere in this issue, is identical with that of the latest "R" type steel coaches of the Executive, but by the use of aluminium alloy for the body a saving of 6½ tons a coach has been made. The order represents the largest application of aluminium yet made in British rolling stock construction. Two eight-car trains will be formed of the new stock, and operated as units to yield performance data. The remaining coaches will be operated interchangeably with existing steel stock to give experience of the relative maintenance costs of the two types. London Transport aims to have all trains with every other axle motored, allowing more rapid acceleration and a more frequent service and reducing the total current consumption. It normally involves a higher maximum demand for current, but lightweight coaches will counteract this.

### British Railways Class "5" Standard Locomotive

THE first of 30 mixed-traffic locomotives of the new standard type for British Railways has been completed at Derby. The locomotive, No. 73000, is a Class "5" 4-6-0 tender engine, and is the second of six classes of standard locomotives which will be placed in service this year. With the exception of the boiler the design features are somewhat similar to those of the Class "7" locomotive, described and illustrated in our February 2 issue, and of which a folding plate of a drawing showing the main details and an illustration relating to the tender were given in our April 27 issue. The new Class "5" is intended for duties similar to those now performed by the former L.M.S. Class "5," the L.N.E.R. Class "B.1," and the G.W.R. "Hall," namely, hauling passenger and express freight trains. Of the 30 locomotives being built, 25 will be allocated to the London Midland Region and five to the Scottish Region. A description of the locomotive appears elsewhere in this issue.

### Railway Exhibits at the South Bank Exhibition

THE centrepiece of the Festival of Britain is the South Bank Exhibition in London, which is being opened today by the King. It includes a concise display of railway exhibits, housed mainly in the Transport Pavilion. We have illustrated most of the larger exhibits on their way to the site, and a brief description of those installed up to that time was given in our April 20 issue.

The Transport Pavilion is some 250 ft. long and from 40 ft. to 60 ft. high, and composed of asbestos sheeting and glass within a steel framework; it occupies a central and conspicuous position. It is divided into floors, or stages, with the exhibits arranged to form a connected story of all forms of transport.

The rail transport section emphasises the achievements of British engineers in building railways and manufacturing their equipment at home and abroad. At the outset a series of display panels shows the origin in the minds of British pioneers of the concept of rail transport. An original Mansfield & Pinxton rail, with stone block sleepers, and a section of Brunel's track are first shown. On the latter rests a pair of early G.W.R. wrought-iron hand-forged 8-ft. dia. driving wheels, with crank axle.

The next display shows the variety of modern British rails, chairs, fasteners, sleepers and other equipment for railways of different gauges. Exhibits comprise a point layout, a pair of pneumatic buffers, a hydraulic track jack, a super-elevation track gauge, a switch lever, and a fully-welded rail joint with cut-away sections showing where the weld appears. The track contributed by the Permanent Way & Accessory Manufacturers of Great Britain, includes flat bottom and bullhead rail, on timber, steel, and concrete sleepers, for the 2 ft. 6 in., metre, 3 ft. 6 in., standard, and 5 ft. 6 in. gauges.

Display panels describe the pioneer work of Murdoch, Trevithick, Blenkinsop, Hedley and the Stephensons. The first locomotive exhibit is the 0-4-0 *Agenoria*, built in 1829. Its lofty chimney had to be removed during transit and for exhibition at the South Bank, and has been replaced by another, similar to that carried by *Stourbridge Lion*, one of its three sister engines.

The growth of main-line railways is described in a display which includes a model of a modern track-laying machine. An account follows of railway expansion in the nineteenth century, at home and abroad. A large map indicates foreign railways for which British engineers have been responsible. Finally, a Buddicom locomotive, brought from France, where it was restored to its original state, typifies the work of British engineers in establishing locomotive industries abroad.

One of the biggest single exhibits in the display is a "WG" class 2-8-2 locomotive built by the North British Locomotive Co. Ltd. for the Indian Government Railways. This is followed by a display of the British contribution to locomotive traction by other methods than steam; a Stephenson-Crossley 330-h.p. diesel-mechanical locomotive, an English-Electric-Vulcan 660-h.p. diesel-electric locomotive, a diesel works locomotive and a flameproof diesel mines locomotive, and a Wickham inspection car, all of various gauges. They are backed by a display case containing scale models of other British export locomotives. The experimental work in this country with gas-turbine locomotives is incorporated in a wall display.

The development of British passenger rolling stock is traced. The up-to-date exhibit is a London Transport aluminium-alloy trailer (fully described elsewhere in this issue). Part of it is sectionalised to show construction and equipment. In a display case are representative scale models of coaches and wagons; they include a 1-in. scale model of a recent cast-steel bogie which incorporates the latest refinements in bogie construction. The evolution of modern braking systems is shown, including models of the compressed-air automatic and the automatic vacuum types.

The outstanding British contributions to safe signalling systems are displayed historically. There are early signals and various manually-operated and all-electric semaphores. Models of locking apparatus follow. The display then passes to the electric telegraph, opening with an original



Cooke and Wheatstone double-needle telegraph and proceeding through other full-size instruments (block, token, and staff) to the present day. A simple point layout and an electric point machine are next shown. Colour-light signals are represented by one major exhibit showing on one column a four-aspect colour-light signal, a route indicator, a searchlight and a junction route indicator; three further exhibits display ground signals. Fog signalling apparatus will also be shown. Exhibits in this section include equipment manufactured by member firms of the Railway Brakes & Signals Industrial & Export Group.

The story passes to tunnelling and underground railways. A wall display showing the construction of the Thames tunnel between 1825 and 1843 introduces its engineer, M. I. Brunel, and the modern method of tunnel driving which he inaugurated and Greathead developed; this is illustrated by a full-size rotary cutter. Other wall displays show the development of underground and tube railways.

There are illustrations showing the first travelling post office, early and modern mail exchange apparatus, and the travelling post office of today. The conquest of delays due to congestion in central London streets is shown with reference to the history of the Post Office railway in London. One of the Pneumatic Despatch Company's cars dating from 1863 is followed by a reconstruction of a 150-ft. length of the present Post Office Tube Railway.

British inventors designed the first tickets and ticket dating and printing machines, and there are examples shown of the originals in each category. More modern developments are illustrated by an automatic pre-printed ticket-issuing machine, a rapid printer, an automatic ticket-dating machine, a coin-operated ticket-printing, dating, issuing, and change-giving machine, and a "germ-proof" booking office pay-window.

After a wall display explaining how the need for running trains to a timetable made universal time necessary, a copy of one of the original guides and three copies of original timetables, including a first issue of *Bradshaw*, are shown. Modern sheet and book timetables follow, including an original poster timetable of the Midland Railway advertising excursions to London for the 1851 Exhibition.

A final display devoted to railway research shows rolling stock, strain gauging and test loading, locomotive testing plant, meteorological research, rail jointing and welding, and the British Railways Research Laboratory at Derby.

The railway section leads to sections devoted to road transport, aircraft, and sea transport; the last-mentioned also has exhibits in other parts of the exhibition.

Three British Railways locomotives—steam, electric, and diesel-electric—are on exhibition at the south end of Hungerford Railway Bridge. The steam locomotive is a standard Class "7" Pacific, *William Shakespeare*; the electric locomotive one of the "EM1" class, for the Manchester-Sheffield-Wath electrification; and the diesel-electric, Southern Region No. 10201.

### The Summer Timetables

**A**LTHOUGH the summer services of British Railways, which come into force on June 18, include the speeding up of 153 main-line trains by between 10 and 69 min., Mr. John Elliot, Chairman of the Railway Executive, has warned that, if the rearmament programme demands, mid-week trains may have to be cancelled to provide freight trains and crews. At weekends, however, they will concentrate on giving maximum passenger services. "There need be no fear," Mr. Elliot said, "that British Railways will not provide all that is required each weekend." They will also do all they can to prepare for next winter when the arms drive will be in full swing, but next winter's passenger services will certainly not be more, and may well be less, than those of last winter.

British Railways are following a principle of no spectacular high-speed runs but a general acceleration of all services; the aim is to give a regular service at frequent intervals. The existing cheap fares will continue, without prejudice to the power of the British Transport Commission to alter the level of the cheap fares as indicated in the charges scheme now before the Transport Tribunal.

Some of the chief features of the schedules were outlined in an editorial note in our April 27 issue, and elsewhere this week we give a summary of the complete programme. The Birmingham service has been improved; ten trains, instead of one at present, will take 2 hr. 10 min., bringing the time down to within 15 min. of the best pre-war bookings. East Anglia, in particular, benefits by revision of services and the use of new standard locomotives; for example, the 2.45 p.m. Norwich to Liverpool Street is accelerated by 69 min.

Travellers living on the outskirts of London and other large cities will benefit by the stopping of more long-distance trains at suburban stations, an arrangement which proved of value last summer. One hundred and ten more buffet cars will be operated. The number of trains on which seats may be booked has been increased to a total of 768 on weekdays, 1,084 on Saturdays, and 323 on Sundays.

More sleeping cars, including third class cars of new design, will be run. Travel by sleeper is becoming more popular, Mr. Elliot said, because of the shortage of hotel accommodation. Steamer services will be augmented. The 4.30 p.m. Continental service from Victoria will run daily throughout July and August; it now has a connection by railcar from Boulogne for Paris.

Mr. Elliot said that he was certain that, despite the rising cost of living and its effect on holiday plans, British Railways would have sufficient traffic this summer to justify their programme. Staff recruitment and allocation is an ever-present problem; in these days of housing shortages it is difficult to move labour to the best advantage.

### Inauguration of Indian Regrouping Scheme

**P**ROPOSALS for the regrouping of the railways in India have been under consideration for several decades. They originated as suggestions for isolated amalgamations, but regrouping on a national scale came to the fore during the 1920's. There were then two schools of thought, one favouring reorganisation on a provincial or political basis, and the other deprecating such considerations. As an instance of the former, the Madras Government gave evidence before the Acworth Railway Committee in 1920-21, recommending that Indian railways be divided into eight groups, each serving a Province.

This committee was the first authoritative body to recommend the grouping of all the railways in the country, but its (majority) report, instead of agreeing with this evidence, was strongly in favour of a policy of integration. It proposed only three divisions, Western, Eastern, and Southern, and recommended that a separate Commissioner, equivalent to a Member of the Railway Board, be placed in charge of each division.

Two years later the Incheape Committee advocated grouping on the lines then recently adopted in Great Britain, and urged that the "preparation of a scheme be taken up forthwith" for the formation of five groups. The Pope Committee of 1933-34, though making no specific recommendation, regarded grouping as a foregone conclusion, but more than once stressed the need for close preliminary study well in advance of action to be taken.

So important did the 1937 Wedgwood Committee consider the question of amalgamation and redistribution of the Indian railways that it devoted a whole chapter of its report to the subject. It considered that, if the Government decided to take over all company-worked and also the company-owned lines as and when expiry of contract permitted, it would still be desirable "to maintain separate State-managed administrations of reasonable dimensions." It was, in fact, strongly opposed to unduly large administrations as being unwieldy, and because (1) central supervision was too remote, (2) *esprit de corps* was weakened, and (3) individuality derived from direct personal initiative at the top was lost in such cases. This committee also favoured retention of a measure of rivalry between administrations as tending to stimulate efficiency and progressive management. Accordingly, the only grouping which it advised was the fusion of (a) the Eastern Bengal and Assam-Bengal Railways, and (b) the Madras & Southern



Mahratta and South Indian systems; all others were to remain intact. It was also opposed to the State-management of all Class I railways. In both respects these views were opposed to Indian opinion.

During the war the Government took over the management of all its company-worked systems and also the Class I company-owned railways, thus removing almost all the larger obstacles to regrouping. Subsequently, those remaining were removed by the integration of the Indian States during 1949-50, and the taking over by the Government of India of the four remaining Class I railways, owned by those States, on April 1, 1950, as well as a number of smaller States-owned lines. The integration of these States railways thus became a matter of urgency.

In June, 1950, therefore, the Railway Board prepared a tentative regrouping scheme, based on three main principles. (1) Each new system or group should, as far as possible, serve a compact zone. (2) It "should be large enough to provide a headquarters organisation of the highest calibre capable of following and assimilating up-to-date improvements in railway technique," and be "equipped with adequate workshop facilities and statistical, training, and research institutions." (3) The regrouping should cause the minimum disturbance to existing arrangements and the least possible reduction in transport efficiency during the period of transition.

This scheme contemplates the formation of six new railway systems each serving a specific zone, and consisting of approximately 5,000 to 6,000 route-miles of line, the total mileage being 33,000. These zonal administrations are:—

	Route-miles
<b>Zone 1.—Northern Railway</b>	5,259
Consisting of the E.P.R.; western portion of the E.I.R. between Lucknow-Kanpur and Delhi-Saharanpur; metre-gauge portion of the B.B.C.I.R. between Agra and Kanpur; and the O.T.R. west of Chupra.	
<b>Zone 2.—Western Railway</b>	5,552
Consisting of the metre-gauge section of the B.B.C.I.R. (except Kanpur-Agra); and the States Railways of Saurashtra, Jodhpur, Bikaner, Jaipur, Rajasthan and Kutch.	
<b>Zone 3.—Central Railway</b>	5,315
Consisting of the broad-gauge section of the B.B.C.I.R.; major portion of the G.I.P.R.; and the Scindia and Dholpur State Railways; comprising under one administration not only alternative routes from the major ports of Bombay to Northern India, but also the lines of communication between Bombay and the industrial areas around it.	
<b>Zone 4.—Southern Railway</b>	5,724
Consisting of the S.I.R.; major portion of the M.S.M.R. broad gauge; M.S.M.R., entire metre gauge; and the Mysore State Railway, constituting both geographically and operationally an ideal arrangement.	
<b>Zone 5.—Eastern Railway</b>	5,016
Consisting of the N.S.; portions of the G.I.P. and M.S.M.; and the B.N. Railways, excluding the coalfields area and Howrah-Khargpur section.	
<b>Zone 6.—North-Eastern Railway</b>	6,336
Consisting of the E.I.R. east of Lucknow-Kanpur; coalfields area and Howrah-Khargpur section of the B.N.R., the O.T.R., east of Chupra; the Assam Railway, including the Assam Rail Link; and the Darjeeling-Himalayan Railway.	

In preparing this scheme every endeavour has been made to avoid cutting up existing railway systems. Seven major and eight smaller railways have been absorbed intact into the new systems. Major changes affecting the existing railways are, in fact, confined to the division of the East Indian and Oudh & Tirhut railways. It is noteworthy that four of the six new systems serve compact geographical areas each to a large extent commercially self-contained, and that the Northern and North-Eastern systems alone are divided so as to share the distended northern area. No particular new arguments appear to have been advanced in favour of the principles of regrouping and amalgamation, but the advantages universally claimed for them have been constantly repeated.

The scheme has been circulated to local governments, chambers of commerce, and other interested bodies, and would seem to have proved satisfactory at least to all important associations of railway users and State Governments in Southern India. Moreover, the formation of the new Southern Railway system presented, in its formation, fewer difficulties and involved less change and preparation

than in any other zone. For these reasons, the proposals in the scheme for the Southern Zone have now been implemented in the inauguration of the Southern Railway on April 14, 1951, by the Minister of States, Railways & Transport, as described elsewhere in this issue. In his inaugural address, the Minister stated that two more new railway systems—he did not say which—would be inaugurated within a year, and that the whole regrouping would be completed within three years. Confidence is thus implied that the scheme as a whole will meet with general acceptance, the first half of it in the immediate future. Attention is directed to the regional organisation of the Southern Railway and the posting of deputy heads of departments to each region. This would seem to resemble the orthodox divisional organisation without any divisional superintendents.

## Transport in Industry

UNDER the title "Transport in Industry," Mr. H. R. Caulfield-Giles, M.Inst.T., A.C.I.S., has written a text-book\* for the Purchasing Officers' Association, covering the syllabus of its final examination subject "Transport Aspects of Purchasing." The author is well qualified to discuss transport from the traders' point of view, as he is Transport & Traffic Manager of Newton, Chambers & Co. Ltd., which has the reputation of doing an extensive business on up-to-date lines.

After a brief review of the Transport Act, 1947, the longest chapter in the book deals with railway rates, classification and conditions of carriage. Useful information is given also about claims for loss and damage, stoppage of goods in transit and wagon demurrage. Shorter chapters are devoted to transport by road, water and air. We noticed with interest that a special word of praise is accorded to the value of the air charter market set up by the Baltic Exchange, London, in 1948.

Guidance is given to students about the packing of goods and the complicated subject of insurance. In his final chapter Mr. Caulfield-Giles touches on the principles which the British Transport Commission proposes to embody in a charges scheme for merchandise traffic and states his own views about possible developments in future. His book should be a useful manual for those who have to arrange transport as part of their everyday duties, as well as for those who are preparing to pass examinations in transport subjects.

## The Romance of Signalling

MUCH has been written about the railway from many points of view, varying in form from the learned historical treatise to the ever popular exposition of how things work on the line. All appear invariably to be welcomed, proving that the fascination of the railway has lost nothing by the coming of the motorcar and aeroplane.

The railway, at its coming, appealed no doubt particularly to the imagination because of the great advance it was seen to represent on previous modes of travel, and the greatly shortened journey times which it made possible. Even the element of danger—highly exaggerated at first by many—involved in the higher rate of speed, probably contributed to this; in addition there was the interest awakened by the novel items of railway construction.

It was fortunate for the success of the railway that electric telegraphy became a practical proposition within a few years of the opening of the Liverpool & Manchester Railway, whose construction left no doubt about the great potentialities of rail transport. Without rapid means of communication, however, those potentialities could never have been realised. Apart from the purely business aspect of the matter, the working of railed traffic specially needed such a facility for other reasons. The great advantages of using the smooth rail brought disadvantages with them. Use of a fixed track meant that, unless a driver stopped to set the direction to be taken by his train, it was not determined by him but by another person. The means

\* "Transport in Industry," by H. R. Caulfield-Giles. Pitman, London. Price 15s.

by which such direction was determined formed relatively weak spots in the track, whose working needed special precautions. All these circumstances made essential quick communication between stations and junctions, as well as some means of conveying instructions to engine drivers by which they could regulate their approach to such places. From these necessities sprang what became known by the general term of signalling.

The present year marks the centenary of an event of much consequence in safe railway working—the establishment by Edward Tyer in 1851 of the first business expressly devoted to the production of electrical signalling apparatus. (The business still continues under his name, which has come to be honoured, particularly in connection with his invention of electric token working, throughout the world.) This was followed soon after in the mechanical field by John Saxby's work in the manufacture of fixed signals and locking apparatus. Others interested themselves in the same lines of endeavour and built up constantly improved means of protecting and accelerating railway traffic which, a century later, are still being developed.

Side by side with this went the perfecting of continuous brakes, still the object of attention, and a most necessary counterpart of signalling. These two branches of railway engineering have often been closely associated in industry. They have called forth fully as much inventive talent and practical skill, and have seen as many hopes and successes, trials and disappointments, as other branches of railway engineering whose results are more immediately evident.

Romance and drama have been prominent in the story of the railway and have been the inspiration of much writing. In his recently published work entitled "Danger Ahead"

(reviewed elsewhere in this issue), Mr. Richard Blythe has brought together the story of the rise of the railway itself and that of the work of the signalling and telegraphic inventors, whose names come readily to the mind and whose designs and devices for the most part are still with us, continuing to render excellent service. What must be some of the first instruments made by Tyer, Walker or Preece in the early days of their business activities are known to be in service today, although no doubt renovated to some extent. Mr. Blythe, who has called his work a dramatic story, expresses attractively this aspect of his subject, which is bound up with some grave accidents of years ago such as Abbots Ripton and Armagh, typical of those which arose from signalling and brake equipment not being all they might have been, even in those days.

This phase of his narrative is evident also in the struggles and rivalries of the inventors, who in seeking to avoid infringing each other's patents, produced the variety in the signalling scene, that for some has always proved its great attraction, though from the practical aspect those directly concerned regard the matter differently. Standardisation may make many things more efficient but it will probably make them for some less interesting. For many, signalling is fully as fascinating as anything connected with locomotives, and they will be grateful to Mr. Blythe for having produced, on the occasion of a noteworthy anniversary in the development of railway safety devices, so enjoyable and informative an account of the general course which that development took and its relationship to the evolution of carriage by rail. No aspect of the subject is unreflected to, and both its legislative and technical sides are treated.

## LETTERS TO THE EDITOR

*(The Editor is not responsible for the opinions of correspondents)*

### British Modern Lightweight Coaches for Indian Railways

April 30

SIR,—In the above article in your April 27 issue (page 470, col. 3, last paragraph) reference is made to aluminium alloy NS5 being "insulated against inter-crystalline corrosion."

Aluminium-magnesium alloy N5 is one of the most durable of such alloys against atmospheric attack, and it is not susceptible to inter-crystalline corrosion. Presumably the words "inter-crystalline corrosion" have been confused with "electrolytic action," which is an entirely different phenomenon.

Yours faithfully,

M. H. LEVIE,  
Railway Engineer

Aluminium Development Association,  
33, Grosvenor Street, London, W.1

line stations, calculated as to traffic received on the branches and paid for elsewhere) substantially. This meant clearly that not only was there not a penny of contribution to the expense of handling the traffic beyond the branches, but that other traffic was subsidising the branch traffic.

Mr. Arkle's paper "The Branch Line Problem," to the Northern Section of the Institute of Transport on November 10, 1950, is most refreshing; the new freedom of speech conceded to railwaymen is apparently having effect. In particular, I would commend his concluding remarks headed "The Future," in which he envisages (rather more cautiously than I) developments along the lines I advocate. I hope that many other secret adherents to this school of thought will take courage and come out into the open.

Yours faithfully,

FREDERICK SMITH

65, Hallowell Road, Northwood

### Closing of Branch Lines

April 21

SIR,—There is not really so much difference between Mr. Hawker and me as the correspondence would suggest on the importance of fast, regular-interval services; that was indeed a point I emphasised in my Report on Branch Lines when I was in the service of the Great Western Railway in 1928. My comments on the memory aspect were not intended to be anything other than a serious rebuttal of Mr. Hawker's overrating of this aspect, especially in comparison with geographical and other factors, such as directional flow of traffic, to which in some, perhaps most, instances the road system conforms more naturally than the railway.

My own very thorough investigations showed that there were many short terminal branch lines where the expenditure for purely branch line maintenance and operations exceeded the gross revenue (actual as to receipts at branch

SIR,—I must express my pleasure that the Talyllyn Railway Preservation Society has been formed with the object of preserving and fostering traffic on this historic railway.

Considering the economic side of operating this railway and how it might attract traffic, I suggest that the society investigate the possibility of opening a youth hostel in Towyn. While this may seem quite unconnected with the railway, I submit that it may serve a threefold purpose.

Visitors to the Youth Hostel may become passengers on the railway as it would be a convenient mode of transport to the interior generally and to the vicinity of Lake Talyllyn in particular. The overnight stay at the hostel would provide an admirable opportunity of pointing out the advantages of the railway journey to possible passengers.

It would provide cheap accommodation for those working on the railway and enthusiasts who wish to visit the railway. The cost of transport to this area is itself con-

### The Talyllyn Railway

April 20

siderable, and low cost accommodation would therefore be specially attractive.

The provision of suitable buildings for the hostel accommodation would provide an admirable opportunity for using and preserving old railway carriages of character. Any such youth hostel would assume a unique character. The collaboration of railway and Youth Hostel interests should be of value to both concerns, each serving to attract custom for the other.

Yours faithfully,

R. TOURET

Y.M.C.A., The Old Palace, Chester

### "Emett" Locomotives

April 16

SIR,—What a shame that the Emett locomotive for the Battersea Pleasure Gardens isn't steam driven!

I wonder what the official reasons are for this piece of stupidity. It cannot be expense, for, as any industrial locomotive enthusiast knows, there are many narrow-gauge steam locomotives lying disused up and down the countryside. Their owners would be glad to let them go for little more than a song; they have a sufficiently "Emett" appearance as they are!

Surely the ideal arrangement would be to bring a Festiniog locomotive or two to Battersea, before they are scrapped. There is even the rolling stock to go with them.

If this is too much for Battersea, I hope that other authorities will consider the idea. How gratifying it would be to have a Festiniog Fairlie or George England locomotive working and finally preserved in Wales.

Yours truly,

F. JONES

28, Elm Park Avenue, N.15

### European Transport Statistics

March 2

SIR,—In an editorial "European Transport Statistics" in your February 16 issue, you review the first annual *Bulletin of European Inland Transport Statistics*, prepared by the Transport Division of the United Nations Economic Commission for Europe. The writer of the article naturally has concentrated almost wholly on those portions of the *Bulletin* which relate to railways, but he has not, it seems, appreciated the primary purpose of the *Bulletin*, namely, an analysis of the European transport situation as a whole.

The compilers of the *Bulletin* were concerned to reflect general trends and to show how the different forms of inland transport in the countries concerned had evolved since the war. Provided therefore that for any particular country the figures were on the same basis for the years selected, the trend can be reflected with sufficient accuracy for broad economic comparison, whether the figures cover only the principal railway system or all the railways in the country.

Despite the fairly large mileage of secondary railway in certain countries, the freight traffic they carry is relatively small. The tonnage carried in 1949 by the Belgian light railway system, for example, the mileage of which was nearly as great as that of the National Railways, was a little less than 10 per cent. of that carried by the National Railways, and the ton-mileage would represent not more than 3 per cent. Even in Switzerland, where the mileage of private line is only a little less than that of the Federal Railways, the tonnage carried by the private railways in 1949 was not much more than a third of that of the Federal System, and private railway traffic expressed in ton-miles was only 7 per cent. of that of the Federal Railways.

With regard to passenger traffic, the position is not so simple, as the number of passengers carried by railways other than the main system may be considerable. As, however, it was not the intention of the *Bulletin* to deal with the highly specialised problems of urban transport, it was felt that it was not misleading, but rather the reverse, to exclude from total traffic figures undertakings such as London Transport or the Belgian light railways. In the

first case, much of the traffic is undoubtedly of an urban character and in the Belgian case the passenger services have more in common with those of a tramway than a main-line railway.

Whatever solution is adopted must be a compromise, and take into account not only the purpose of the statistics, but also their availability within a reasonable time after the period to which they refer. To have included figures relating to railways, other than the principal systems, would have caused substantial delay. The Working Party of the Inland Transport Committee has made certain recommendations regarding railway statistics and it may be possible in future issues to give some particulars of smaller systems where their traffic is not insignificant, or at least to indicate the importance in relation to total traffic.

It is suggested at the end of your editorial that there may have been duplication of labour as between the compilers of the U.N. *Transport Bulletin* and existing international railway organisations. Clearly, any statistical treatment of transport in more than one publication, even if from a different standpoint, must involve some repetition, but this is hardly the same as duplication. Obviously, too, figures contained in an international publication can also be found in the national publications of the individual countries, but this is not normally regarded as a duplication. The reference to duplication is presumably to the *International Railway Statistics* of the International Union of Railways. As is stated in the introductory note to the *Bulletin*, figures for 1938 and 1948 were taken from this source for the sake of comparison with those of 1949. For 1949, certain statistics are contained in the volume published at least two months later by the I.U.R., but several of the railway series in the U.N. *Bulletin* are not to be found in other international publications, such as those for unserviceable rolling stock.

Lastly, may I add that no other publication has attempted to combine, in a systematic manner, statistics relating to all forms of European inland transport together with a commentary on the figures?

Yours faithfully,

P. H. CHARGUERAUD-HARTMANN  
Director, Transport Division

Economic Commission for Europe, Geneva

[Where the mileage of a secondary railway is considerable in relation to that of the principal system, even if the traffic is small, there seems to be no case for omitting the secondary railway. Inclusion of important urban railway figures is surely not a "highly specialised problem of urban transport." In large areas of rural Belgium the light railways perform the functions of a standard railway for both goods and passengers.—Ed., R.G.]

### Return Tickets

April 25

SIR,—Lt.-Colonel E. E. D. Hedley's suggestion in your issue of April 20, that the outward half of monthly and ordinary return tickets should be extended from three days to 15 and 45 days respectively, seems unnecessary, as the three-day availability applies to single tickets only. Both outward and return portions of return tickets are available on any day within the one month or three months allowed. This information appears on pages 203 and 459 of the current London Midland Region timetable.

There is, I submit, a real need for the publication of a railway guide on the lines of the *Post Office Guide*, which would list all facilities, conditions, regulations, etc., some of which are scattered through the Regional timetables. The letters to *The Times*, as Lt.-Colonel Hedley mentions, were mostly concerned with alternative routes and much of this information can only be obtained from enquiry and booking offices. It would be in the public interest to make all alternative routes better known by publishing them. The former railway companies, especially the Great Western, included some alternative routes at the back of their timetables and these, presumably, are still in force.

Yours faithfully,

WILLIAM J. SKILLERN

15, Hollymount Road, Stockport



## THE SCRAP HEAP

### No More Blue

Mr. John Elliot, Chairman of the Railway Executive, has stated that, when the present stocks of blue paint are exhausted, all express passenger locomotives painted in blue will be painted in the dark green livery already used for some classes.

### Euston, 1951

(With kindest regards to A. B.)

"George," when our Hall opened was alas no more,  
Altho blue, gold, and cream he may have seen.  
Had he, in his last year, looked through the door  
When painters bustled round upon the scene.

"Modernity" was then unmellowed by tradition,  
And dust had not impaired its new condition,  
God grant your wish, A. B., anent the tea,  
But walk beneath the scaffolding and see!

J. M. C.

### 25,000 Passengers on One Special

The first of 50 special trains which the London Midland Region of British Railways has arranged from various centres for the pigeon racing season left Preston on April 27 for Craven Arms. There the birds were released to fly home again. They were accompanied on the trains by attendants attached to the various racing clubs. In addition to the above trains smaller consignments of birds will travel at various times in vans attached to express

passenger trains. The first "special" carried 25,000 birds and during the season 5,000,000 pigeons will be moved by train.

### Puzzle Corner

Not so long ago, a Socialist M.P. got up in Parliament and said the railways were employing ninety thousand more people than they really needed. Maybe it's an exaggeration. Let's take a big-hearted view, and say there are only thirty thousand. *Where are they?*

If any concern has thousands of extra workers, you would think they would never be stuck for a replacement. But look what happened when a railway fireman got married. They took his train out of service and laid on buses instead. When one of the buses broke down, they sent the passengers by taxi. All because one fireman was on his honeymoon.

What kind of a system is it when a train stops just because one man gets married? If this kind of thing goes on, we'll have the railways advertising their specially reliable trains. Instead of the Bournemouth Belle, we'll have the Bournemouth Bachelor, guaranteed to run, and it runs all the faster when there's a woman about. And we'll have the Wolverhampton Woman-Hater, driven by a crew who have all been crossed in love.

A lot of the carriages and engines looked pretty worn-out after the war, and we can remember station sandwiches with stale meat in them. You don't get stale meat in railway sandwiches nowadays. No, sir! You don't get stale meat anywhere. You don't get meat anywhere.

But there was one thing you could say in favour of the wretched old privately-owned trains. They went. And some of them went pretty fast, especially some of the honeymoon trains that took romantic young couples to romantic seaside places. The private companies gave us the Honeymoon Non-Stop. It took Socialism to give us the Honeymoon Non-Start.—*British Workers' Information Bureau.*

### Keep London Tidy Appeal

An appeal to "keep the vehicle tidy" has been launched by London Transport on all its 13,000 road and rail vehicles. Brightly coloured notices are being posted on road vehicles, and there will be similar slogans in all tube cars, with posters at railway stations.

Special "tidiness" discs are being put on the 600 litter baskets at London Transport railway stations. The object of this special drive is to aid in keeping London tidy during Festival year by eliminating litter throughout the system. It is being started in support of a nation-wide "Keep Britain Tidy" campaign launched by the Ministry of Local Government and Planning and the Ministry of Works.

### The Lion's Share

Should you go down to Waterloo,  
As everyone this year should do,  
You'll see a most amazing sight,  
For staring at you, left and right,  
Two lions stand, one sleek, full-grown,  
The other one all skin and bone.

And, in some enigmatic way,  
Each typifies life in its day:  
Today's example, lank and lean,  
The strangest lion ever seen.  
A pattern of austerity,  
Will scarce encourage you or me.

The other, rubicund and fat,  
Tempt's one to think of this and that;  
Whether old times were bad or good,  
It seems there was at least some food!  
With confident, contented mien,  
He dominates the daily scene.

The other feline seems to feel  
A little anxious on his wheel,  
Not very certain what to do  
If something tasty came in view:  
How could he pounce upon his prey  
With that old wheel stuck in the way?

Does he portray the present age,  
When planned economy's the rage,  
When everyone must plot and plan  
Until there is little left for man  
To live upon, but lovely schemes  
That start and end in happy dreams?

I asked a railwayman which cat  
Appealed to him, the lean or fat;  
He said "I really must confess  
"I could not possibly care less—  
"Our one predominating care  
"Is that we get the lions' share!"

A. B.

### The "Train of Europe"



E.C.A. exhibition train at Munich before leaving on a tour of thirteen member-countries of the E.R.P. and O.E.E.C.

# OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

## NEW ZEALAND

### Staff Shortages Delay Electrification

Engineering work on the line between Wellington and Hutt Valley is to be proceeded with to the limit of the Railways Department's resources, but because of staff shortages progress on the £6,000,000 Hutt Valley general railway electrification scheme has not been maintained at a rate that will enable the changeover to take place in 1952, as originally intended. Power supply is also a problem as a full service cannot be run until the completion of the Maraetai hydro-electric scheme late next year.

The provision and installation of all the electric equipment and substations for the supply of power is carried out by the electrical branch of the Railways Department.

by small lever frames also controlled from the slide instrument. This signalling has been replaced by the latest type of manual signalling which included the provision of 16 new signal cabins, lever frames, and so on. Trains on the single line were signalled by Tyer's No. 7 token or tablet instruments situated in the stationmaster's office and worked by him. The double line is now signalled by Tyer's three-position block instruments with full lock and block ancillary devices; they are placed in the signal cabins and are worked by block signalmen.

The total estimated cost of the work will be approximately Rs. 87,27,815 (Rs. 63,14,834 for civil engineering, Rs. 11,95,952 for bridgework, and Rs. 11,77,263 for signalling and interlocking).

## CANADA

### Action on Transport Report

The Government intends to put into force the recommendation of the Royal Commission on Transportation for the equalisation of freight rates. It is not yet known whether the legislation—a series of amendments to the Railway Act—will be ready for action by Parliament at the current session.

The Royal Commission's equalisation proposals, submitted to the Government last month, called for uniform freight rates throughout Canada as far as practicable, eliminating regional differences which have brought protests from the west and the Maritime Provinces for several years.

On other points in the Royal Commission report, the Minister of Transport told the House that as far as he knew the Government had no intention at the moment of changing the "Crow's Nest Pass" freight rates on grain moving in the West, which are held at low levels by a 1925 statute. The commission recommended that no change be made in these at present.

The Government had not yet had time to consider recommendations for a new national transport policy calling for the co-ordination of all transport agencies under Federal jurisdiction.

### Mr. Gordon on Road Competition

Competition between road transport and railway service was the major national transport problem of this decade, stated Mr. Donald Gordon, Chairman and President of the Canadian National Railways, in a recent address. Because intra-provincial road transport came within the jurisdiction of the ten different provincial governments, the Royal Commission on Transportation did not directly explore the problem of road-rail competition. Mr. Gordon earnestly hoped that "the range of public discussion stimulated by the report will be broadened to take account of the

very important facts which lay outside the commission's terms of reference."

From the standpoint of the Canadian public as a whole, it did not matter whether freight was carried by rail or road, provided that consignors could receive the quality of service they wanted at the lowest possible expense to themselves and to the public, and provided that the requirements of national defence were obtained at the minimum cost. The Canadian railways, however, were carrying some 150,000,000 tons of freight annually at an average rate per ton-mile of less than one cent and a half—at which level no lorry operator in North America could survive.

Localised lorry competition was a fundamental obstacle in the equalisation of railway freight rates. Mr. Gordon said that lorries were nowhere subject to anything like the detailed regulation of rates, operations, and statistics applied to the railways. Generally, the lorry operator was free to pick up and choose traffic, to discriminate in practice with impunity and to abandon services at will. He did not advocate applying to road carriers precisely the same type and degree of regulations as governed the railways, but thought it should be possible to relax some of the bonds that tied the railway management in meeting competition with road transport.

The Canadian National Railways management was ready not only to recognise the technical advantages inherent in motor vehicle carriers, Mr. Gordon said, but to make use of them in providing combined rail and road services for the greater convenience of the public. Proposals in this direction had been frustrated by the refusal of authorities to license railway-owned bus or lorry services.

### Refrigerating Tests

A saving of half-a-million dollars on the annual cost of refrigerator van maintenance has been estimated by Canadian National Railways on the results of recent experiments made in the company's research laboratory. The experiments were aimed at reducing the corrosion to "reefer cars" caused by the action of salt brine and water.

Mr. S. W. Fairweather, Vice-President, Research & Development, has stated that a new type corrosion inhibitor has been developed and proved on the "test tube" level and is now being tried with three refrigerator vans to prove its efficiency under operating conditions. Laboratory tests showed it to be from 78 to 95 per cent. effective, depending on the brine concentration.

The inhibitor is composed of sodium hexametaphosphate and powdered calcium chloride and is placed in the van bunkers, in proportion to the amounts of ice and brine used. As it is only partially expended in the refrigeration process, the surplus inhibitor will tend to reduce corrosion of track and bridge

## INDIA

### Doubling of B.B.C.I.R. Main Line

The doubling of the line between Anand and Barejadi, on the north-west main line of the B.B.C.I.R., was completed on April 17 when the last section to be converted from single track was inspected by the Government Inspector of Railways.

The B.B.C.I.R. main line runs from Bombay to Delhi, 861 miles. The line splits at Baroda, whence the route to Delhi is known as the north-east main line and that to Ahmedabad and Viramgamas, the north-west. The track between Bombay and Borivli, 25 miles, is quadruple, and from Borivli to Baroda, 225 miles, double. Beyond Baroda both main lines are single except for 11 miles between Barejadi and Ahmedabad.

The construction of the north-west main line began in 1862. It was single, but many bridge piers and embankments were built to take a double line. During the war the capacity of this single-line section reached saturation point, and the Railway Board decided to double it.

Work began in January, 1949, and involved the extension and remodelling of eight yards. Of four major bridges required to accommodate two tracks, the longest was 686 ft. and the shortest 150 ft. The station buildings at Anand and Nadiad are being entirely rebuilt and provided with a modern reinforced-concrete structure, with up-to-date booking facilities, waiting rooms, retiring rooms, baths and washing facilities, restaurants, and fluorescent lighting.

Except at Anand and Barejadi, where the usual complement of signal cabins were provided, the single-line stations were signalled and interlocked by a central lever frame under the immediate control of the stationmaster by an electric slide instrument in his office; the points at each end of the yard were operated

structures by brine and water drip. The three vans are operating between Halifax and Vancouver.

## SYRIA

### Transport of Pipes

Shipments of pipe for the Iraq Petroleum Company's new Kirkuk-Mediterranean pipeline, 554 miles are now arriving regularly at Tripoli

(Lebanon). All the pipes for the 26-in. section (over 21,500 tons) have arrived. The 30-32-in. pipes are 30 ft. long, the smaller pipes being nested inside the larger to facilitate transport.

From Tripoli these pipes are conveyed by rail to Homs, the base of operations for the 405-mile section between the Mediterranean and the west bank of the Euphrates. Approximately 95,000 tons will pass through Tripoli,

and 45,000 tons through Basrah for conveyance by metre and standard gauge lines to Baiji (halfway between Baghdad and Mosul) the base for the section of 149 miles from Kirkuk to the east bank of the Euphrates.

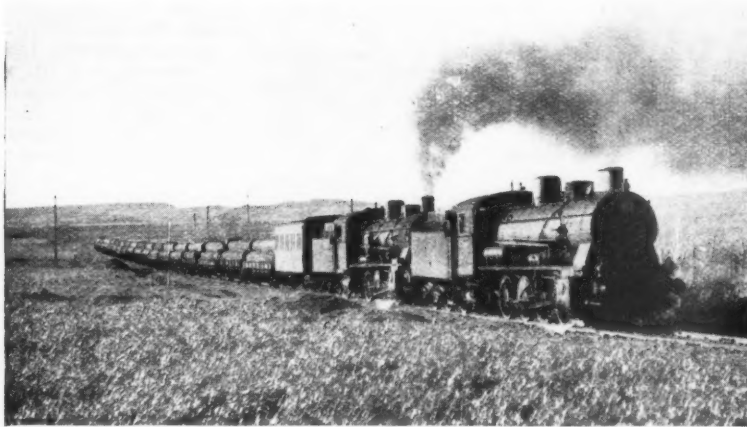
## DENMARK

### Introduction of Buffet Cars

On some day services the State Railways operate dining cars belonging to the International Sleeping Car Company. As they are not sufficiently used, it has been decided to replace them by buffet cars, which will also be introduced in other trains.

The new cars are being converted from existing steel passenger coaches, which have 8½ compartments seating 68 passengers. After rebuilding they will contain three compartments with 24 seats, kitchen, bar, and restaurant saloon with seating for 16 passengers. The saloon has windows in the car side and to the side corridor, which is maintained. The lighting is fluorescent.

The bar will provide refreshments, and in the saloon cold dishes and light hot meals will also be served. The restaurant saloon will be managed by the International Sleeping Car Company, but the buffet cars will belong to the State Railways. Six buffet cars are being built and will be put into service by June.



German-built 0-8-0 locomotives hauling train of pipes between Tripoli (Lebanon) and Homs (Syria), Damas-Hamah & Extensions Railway

(Photo)

[P. J. Bawcutt]

## Publications Received

*Danger Ahead: The Dramatic Story of Railway Signalling.* By Richard Blythe with the technical assistance of D. S. Bennett. London: Newman Neame Limited. 8½ in. x 5½ in. 132 pp. Illustrated by Dick Hart. Price 10s. 6d. The author seeks to present, with just sufficient technical references to enable the main theme to be followed by anyone unacquainted with signalling, the rise and development of the railway and the measures which its special features made necessary if safety and rapidity of working were to be achieved reasonably satisfactorily. After recounting the beginnings of the railway system, he describes the early forms of signal and the almost concurrent and vitally important development of railway telegraphs, without which the full benefits of the new method of traction could not have been obtained. The advances in signalling, after the primitive ideas had been applied, are shown, followed by the effect on railway history of the competition between the old companies. Safety legislation and the Newark brake trials, with the final enforcement in Great Britain of interlocking, block working and automatic brakes, are then treated, after which the principal steps in the invention of signalling and block apparatus as distinct from the early forms of disc and other signals is traced. There come chapters on the refinements of track circuiting, automatic and power

signalling. The book concludes with an account of the course of legislation since 1900—when a decisive step was taken in improving the conditions of railway employment, from the point of view of safety—and a forecast of future developments. In view of the interest being shown in transport matters at the Festival of Britain, Mr. Blythe's comprehensive presentation of an important phase of the form of transport with which this country is specially associated and in which safety measures have always claimed particular attention with uniformly good results, appears at an opportune time. It should help to make better known a field of invention in which Britain has excelled.

*Modern Railway Motive Power.* By Brian Reed. Technical Trends Series. London: Temple Press, Ltd., Bowling Green Lane, E.C.1. 7½ in. x 5 in. 170 pp. Illustrated. Price 8s. 6d.—As a review in minimum compass of all descriptions of modern railway motive power we have not seen a better book than this. After an introduction dealing with the fundamentals and limitations of the various types of motive power, the author proceeds to devote the major part of the book to the steam locomotive, which monopolises eleven chapters; every debatable point about design is examined, and the author's wide range of knowledge is evident in the way in which he has brought under review the practice of railways in all

parts of the world. In these days of rapid scientific development, many promising experiments are undertaken, but the life of some is of brief duration; we notice in the chapter on special forms of steam locomotive, for example, references to such modern steam turbine locomotive experiments as the L.M.S.R. 4-6-2 No. 6202, the Pennsylvania 6-8-6 No. 6100, and the Chesapeake & Ohio steam-turbine-electric locomotives as though they are all going concerns, whereas all these experimental locomotives now are withdrawn or scrapped; the same applies to the Southern "Leader" tanks, which have not even entered service. Three final chapters deal with electric, diesel, and gas turbine locomotives respectively; in a future edition the diesel locomotive might well have some more extended treatment in view of the rapidity with which it is ousting steam, particularly in North America. A representative collection of illustrations and a useful index complete the volume.

*Holidays in Scotland.*—Many parts of Scotland, the Hebrides, Orkney, and Shetland are covered in the summer holiday programme for Scotland which has been prepared by Thos. Cook & Son Ltd. There are special facilities for attending the Edinburgh Festival, besides a variety of tours within Scotland, and a series of tours combining Scotland with other parts of the British Isles.



# Inauguration of Indian Regrouping Scheme

## Formation of Southern Railway as the first of six zonal systems

ON April 1, 1950, the Government of India took over the last four Class I railways—previously owned and worked by Indian sovereign states—and thus paved the way for the long-contemplated regrouping of all railways in the country. Later in that year it put forward for general approval a definite plan for the formation of six new systems, each to serve a particular zone.

Of these zones, that serving the Southern Zone and consisting of the former Madras & Southern Mahratta, South Indian, and Mysore Railways, presented in its formation the fewest difficulties and involved the least change and preparation. This system, now known as the Southern Railway, was officially inaugurated at Madras on April 14, 1951, by Shri N. Gopalaswami Ayyangar, Minister of States, Railways, & Transport.

In his inaugural speech the Minister enumerated the advantages that would result from the amalgamation of the three lines and of regrouping, and re-

minded his audience that it was from Madras that the first proposal for a railway in India emanated 120 years ago;—it was to have been a 150-mile line worked with animal haulage—and that, though there was another proposal for a steam line 860 miles in length in 1836, the first railway was not opened for traffic in that part of the country until 25 years later.

The new system would serve an area of some 200,000 sq. miles and a population of about 84,000,000. Care had been taken to phase the change from the old to the new order so as to avoid any reduction in the quality or quantity of services rendered during the period of transition. It was hoped that regrouping would be effected in two other zones within a year, and that the entire programme would be completed within three years. He also announced that a new factory for building "all-steel non-telescopic coaches" on the Southern Railway was being considered, and that it would probably be at Golden Rock.

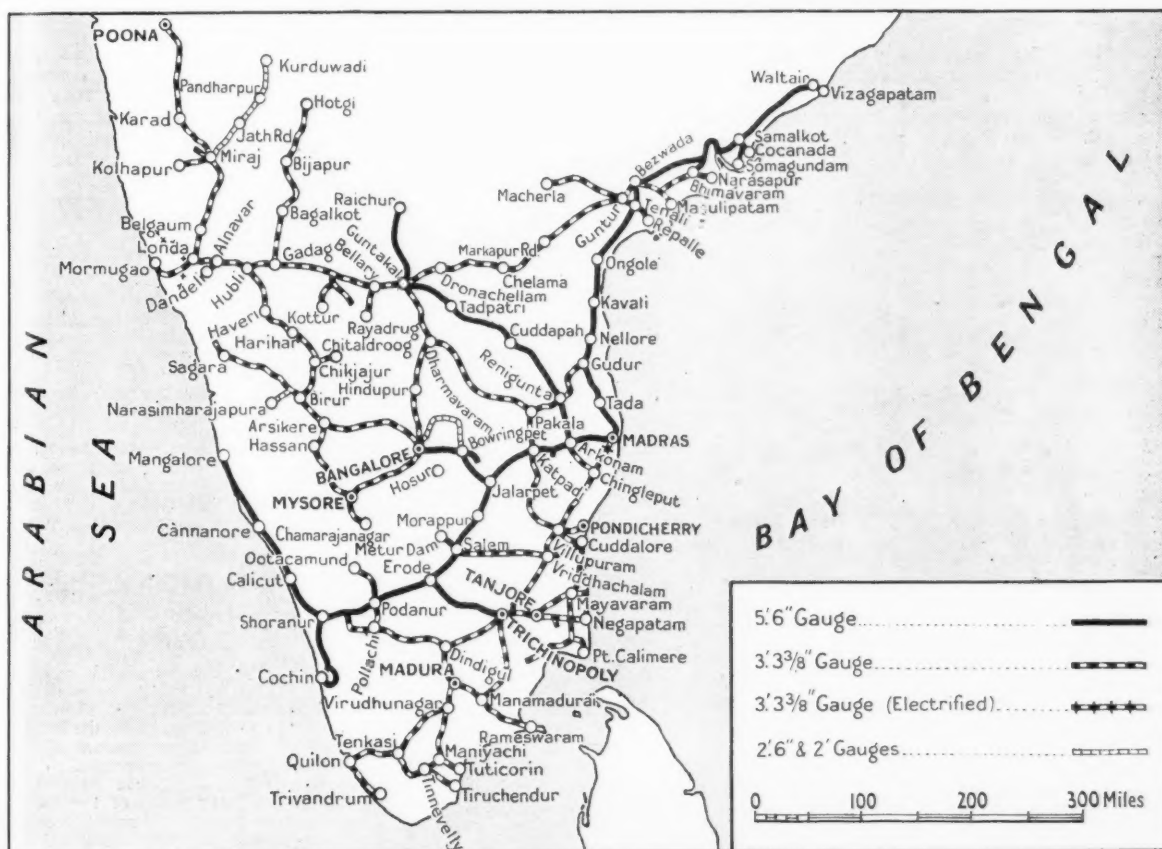
Concluding with some remarks on

staff, labour, and trade union relations, the Minister inaugurated the new system and wished it success.

### Recent Achievements in India

Another speaker at the ceremony was the Hon. Shri K. Santhanam, Minister of State for Railways. He drew attention to the proud record of India's achievement since the war in spite of a long series of great difficulties, notably the great river valley projects and the chain of scientific research institutes recently inaugurated. Like them, the Assam Rail Link, the Chittaranjan locomotive works, and the initiation of the Kandla Harbour project and the 170-mile railway serving it, had been the responsibility of his senior ministerial colleague, Shri N. Gopalaswami Ayyangar; it was, however, the regrouping that would be remembered as his greatest work in the domain of railways.

Shri F. C. Badhwar, Chairman of the Railway Board, explained that during the past two years much thought had been given to devising a regrouping



Map of the newly-constituted Southern Railway, India

pattern that would cause the least disturbance and dislocation while securing the advantages of unification. All important associations of railway users and the State Governments had been fully consulted and had made useful contributions to the Government of India plans. Acknowledged experts in India and abroad had also given their views. He and his colleagues had complete confidence that regrouping would work satisfactorily and render effective service to the public; they counted on the support and goodwill of railway users and of their fellow railwaymen to make it a success.

#### Size of the System

A Government of India minute reports that the Central Advisory Council for Railways gave whole-hearted and unanimous approval to the formation of the Southern Railway. It also points out that, economically, the zone it serves is a self-contained unit favouring the unification of its three former railways. Amalgamation will eliminate dual control at interchange junctions between them, and make possible the pooling of

locomotives and rolling stock. For instance, on the Mysore Railway alone, pooling is expected to result in a saving of 10 of the 60 engines in service. In the routing and scheduling of train services; rationalisation of workshop; and workshop capacity; centralisation of purchasing, handling and maintenance of stores are opportunities for improvements.

Some idea of the Southern Railway may be gathered from the fact that it consists of 5,724 route-miles of line, of which 1,755 miles are of 5 ft. 6 in. gauge, the remainder being almost all metre gauge. In 1949-50 the gross earnings of the three constituent railways amounted to Rs.41.72 crores (£31,290,000), working expenses to Rs.34.48 crores (£25,860,000) and net earnings to Rs. 7.24 crores (£5,430,000). Over 18,000,000 tons of goods were carried. Ton-mileage totalled 2,988 millions and passenger-mileage 7,268 millions.

#### Regional Organisations

The system extends from Poona (metre gauge) in the north-west, and

Waltair in the north-east, to Trivandrum in the extreme south of the peninsula. It is divided into three regions; the 5 ft. 6 in. gauge sections form the Central Region, and the metre-gauge sections in the north and south constitute the Northern and Southern Regions, respectively. Their headquarters are at Madras (Central), temporarily at Mysore, later at Hubli (Northern) and Thiruchirappalli (Southern), (formerly called Trichinopoly) and at each is stationed a deputy head of each of the three departments, Operating, Civil, and Mechanical Engineering.

These deputies are individually responsible to their heads of departments at zonal headquarters, Madras. The regional deputies have adequate financial and other powers to enable them to deal with most of the work arising in their regions, and so relieve the heads of departments of such work and free them for concentrating on major problems of policy and for more intensive inspection work. The regrouping plan for India as a whole is discussed in an editorial article which appears on page 488.

## Sleeve-Packed Brass Cock

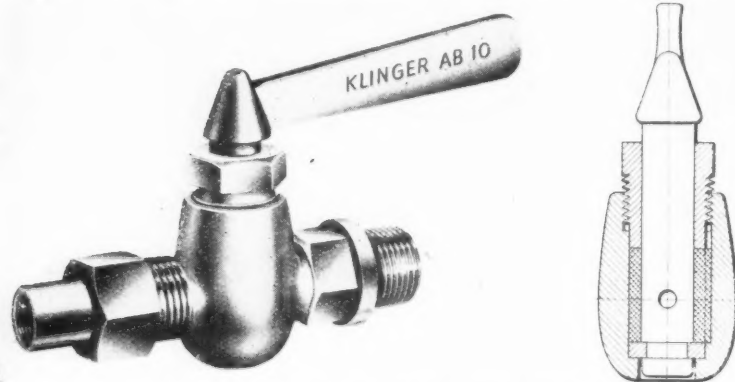
*Replacing taper plug cocks for pressure gauges and other equipment*

**A** SIMPLIFIED sleeve-packed cock to replace small taper plug cocks, designed and manufactured by Richard Klinger Limited, Sidcup, Kent, is known as the Klinger AB 10, has a bore of  $\frac{1}{8}$  in. (4 mm) and is suitable for gas or hydra-

ing over the plug spindle keeps it a snug fit around this also. A ridge on one side of the sleeve fits into a corresponding groove in the body and makes sure that the ports are always in line.

Steel eyelets recessed in the sleeve pre-

by a split retaining ring which fits in a recess at the base of the spindle. When repacking is necessary, only the packing sleeve requires replacement. The cock, which is identical in principle to the larger sleeve-packed cocks made by this firm, is available in six different patterns screwed internally or externally and with or without unions.



*Klinger sleeve-packed brass cock with (right) section showing method of securing plug in position*

lic and compressed air controls, instrument connections, and so on. The cock body, machined from a hot brass stamping ensuring a close-grained material, is tested hydraulically to 1,000 lb. per sq. in. (70.3 kg/cm<sup>2</sup>) and is claimed to give reliable service combined with ease of maintenance under exacting conditions.

To ensure a pressure-tight plug a packing sleeve is provided; this is a press fit in the body and a tightening nut slid-

vent the sleeve from squeezing into the ports when tightening up and at the same time prevent the passing fluid from cutting the asbestos packing. These eyelets are conical in section, so that when the bottom tightening nut is followed up the tendency is to squeeze the sleeve more tightly around the plug, and at the same time the eyelet is pushed towards the cock body, so that there is no risk of it scoring the plug. The plug is secured

**COMPRESSED AIR EQUIPMENT AT CASTLE BROMWICH.**—The stand of the Consolidated Pneumatic Tool Co. Ltd., at the B.I.F., is in the outdoor section. Exhibits comprise in the main all classes of compressed air equipment of special interest to the civil engineering and contracting industries. A feature of the display is the new Feedleg and Model 32 rock drill. This exhibit is of special interest because of the trend towards the use of lighter equipment in present-day tunnelling methods. The display of pneumatic tools and ancillary plant for compressed air operation is comprehensive.

**RAILWAY FINANCE CORPORATION STOCK.**—Holders of Railway Finance Corporation 2½ per cent. guaranteed debenture stock, 1951-52, have been notified that the outstanding stock will be redeemed at par on August 1. Total amount of the original issue was £27,000,000, but the accounts for the year ended January 31, 1951, show that the sum of £1,558,777 repaid by the British Transport Commission on account of the loans made to the railway companies has, subsequent to January 31, been applied in the purchase of £1,559,500 of the stock, which has been cancelled. Interest received on loans during the year amounted to £675,000, against £731,250 for the previous 13 months, which was utilised for the payment of debenture interest.

## British Railways Class "5" Standard Locomotives

*Designed for main-line  
passenger and freight services*

THE first of a new class of mixed-traffic locomotives, 30 of which are to be built during 1951, has been completed at the Derby works of British Railways. It is of the 4-6-0 type, Class "5," and is numbered 73000. The engines will be allocated to the London Midland Region and Scottish Region. Like other British Railways standard types which will appear this year, it has been designed and built under the direction of Mr. R. A. Riddles, Member for Mechanical & Electrical Engineering, Railway Executive. The parent office for design of this engine is Doncaster, although certain sections were designed at Brighton, Derby, and Swindon.

Many features and details of the design are common with those of the 4-6-2 standard locomotive No. 70000, described and illustrated in our February

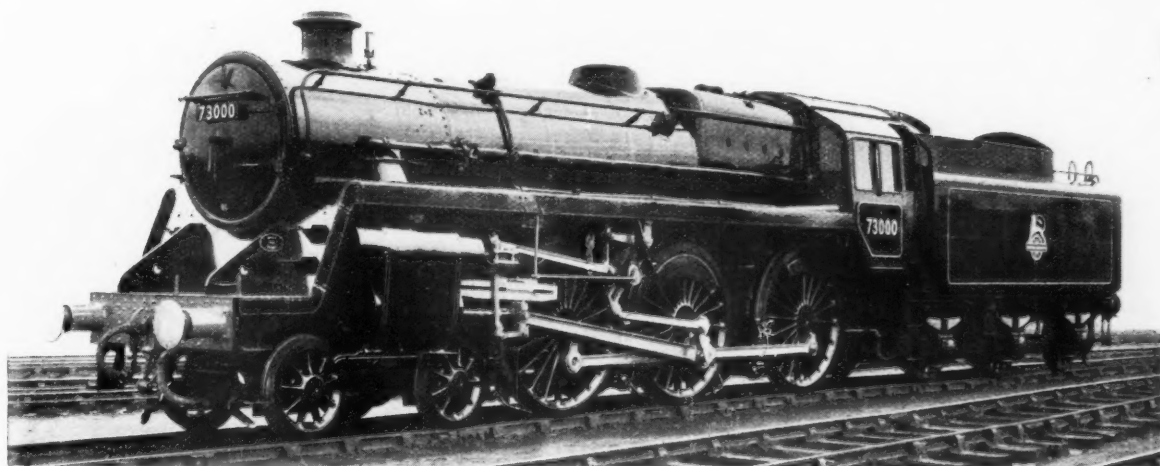
2, 1951, issue. This new locomotive is intended for duties of the kind now worked by the L.M.R. Class "5," E.R. and N.E.R. "B1," and W.R. "Hall" classes.

The leading dimensions of the locomotive are as follow:—

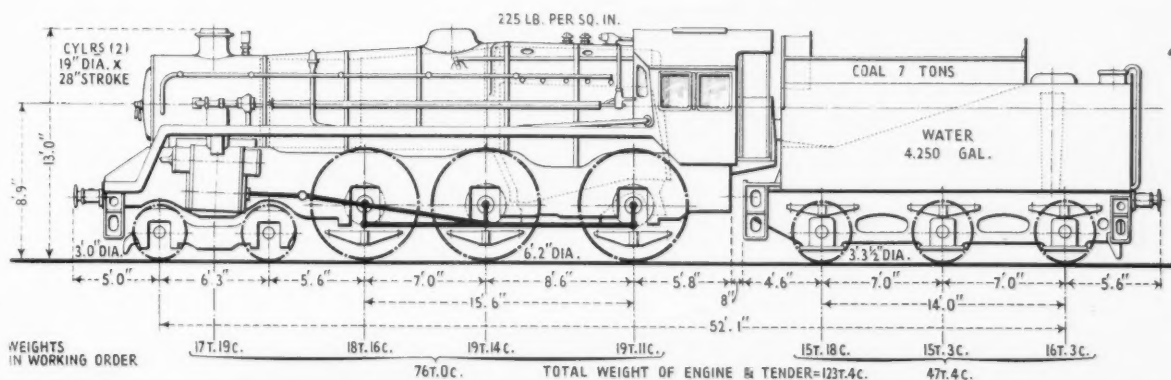
Cylinders, dia. and stroke	19 in. by 28 in. stroke
Wheels, coupled dia. ....	6 ft. 2 in.
... front bogie, dia. ....	3 ft.
... tender, dia. ....	3 ft. 3½ in.
Wheelbase, coupled ....	15 ft. 6 in.
... engine ....	27 ft. 3 in.
... engine and tender	52 ft. 1 in.
Heating surface ....	1,479 sq. ft.
Tubes ....	171
Firebox ....	1,650
Total evaporative ....	369
Superheater ....	28.65
Grate area ....	225 lb. per sq. in.
Boiler pressure ....	24,120 lb.
Tractive effort ....	4.97
Adhesion factor ....	76 tons
Weight of engine in working order ....	47 tons 4 cwt.
Weight of tender in working order ....	

The boiler follows closely the design of the L.M.R. Class "5" 4-6-0 engine, and the same flanged plates are common to both, as is the working pressure of 225 lb. per sq. in. The shell is of high-tensile carbon manganese steel, and the barrel consists of two rings, the second being tapered. The two rings are rolled from  $\frac{3}{8}$  in. and  $\frac{1}{2}$  in. thick plates respectively, the outside dia. being 4 ft. 11½ in. at the front, and 5 ft. 8½ in. at the firebox end. The smokebox tubeplate is of the drumhead type  $\frac{1}{2}$  in. thick. There are 28 large flue tubes 5½ in. dia. outside, 7 s.w.g. thick, and 151 small tubes, 1½ in. dia. outside and 11 s.w.g. thick. The length between tubeplates is 13 ft. 2½ in.

The regulator in the dome is of the vertical grid type operated by an external pull rod connected to a transverse shaft which works through a stuffing



*British Railways Class "5" standard locomotive designed for operating main-line passenger and freight services*



*Diagram showing the principal dimensions and weights of the locomotive*



box on the second barrel plate. The boiler is fed with water through two separate clack valves placed at approximately 30 deg. on each side of the vertical centre line of the front barrel. The clack valves deliver on to two inclined trays, which deflect the incoming water round the inside of the barrel clear of the tubes.

A steam manifold is fitted on the firebox top in front of the cab, and is provided with separate shut-off cocks to each steam supply pipe, as well as a main shut-off valve inside the cab. Two direct loaded safety valves are mounted on the firebox top immediately in front of the manifold.

The Belpaire firebox is 9 ft. 2½ in. long outside at the bottom and the outside width is 3 ft. 11½ in. The steel wrapper plate is ½ in. thick and the inner firebox is of copper with a ¼ in. thick wrapper plate. The firebox has a forward sloping throatplate, the tubeplate being 1 in. thick. All firebox water space stays are of Monel metal, longitudinal and transverse stays are steel. The boiler and firebox are lagged with a lightweight Fibreglass mattress. A manually operated blowdown valve is fitted.

A rocking grate is provided, consisting of eight rocking sections, each section carrying 14 renewable firebar units, making a total of 112 units for the whole grate. The grate is divided into two parts, front and back, which can be rocked separately from the footplate, the operating gear being so arranged that two different travels can be used, i.e., full travel for dropping the fire when the engine is over an ashpit and a shorter travel for agitating the fire to eliminate ash and break up clinker while the engine is on the road.

The ashpan has three hoppers, and is of the self-emptying type, having bottom flap doors on the hoppers, which are operated by a hand lever from ground level. The front and back damper doors

are separately opened and closed, operation being by screw gear worked by handwheels.

The smokebox is of the cylindrical type resting on a fabricated saddle. The blast pipe has a plain circular cap of 5½-in. nozzle dia. which incorporates the blower ring. The smokebox is self-cleaning, the design being similar to that of the Class "7" locomotive; a Tri-Tone chime whistle is operated from the cab.

#### Frame Design

The main frames are of 1½ in. thick plates spaced 4-ft. 1½ in. apart, and are well braced by horizontal and vertical stretchers and by pin-jointed cross-stays attached to the axlebox guides; the latter are fitted with manganese steel liners on the wearing surfaces. The dragbox at the hind end is fabricated and a single drawbar transmits the tractive effort to the tender through rubber springs. The boiler is supported at the hind end of the firebox on brackets which are integral with the dragbox, and no expansion angles of the usual type are required.

The engine and tender are carried throughout on British Timken roller bearing axleboxes. Those for the bogie and coupled axles are of the non-split cannon type. The faces of the axleboxes in contact with the guides are provided with manganese-steel liners welded to the body of the axlebox. All engine and tender springs and adjustment is similar to that obtaining in the Class "7" locomotive.

#### Cylinders and Valve Gear

The two outside cylinders are 19 in. dia. x 28 in. stroke and are of cast iron. The 11 in. dia. piston valves have a steam lap of 1½ in. and a lead of ¼ in., and are operated by valve gear of the conventional Walschaerts type, giving a travel in full gear of 7½ in. and a full gear cut-off of 77.5 per cent. Slidebars are of the three-bar type with

underhung crosshead. The piston head incorporates a bronze spring-loaded slipper which carries the head clear of the cylinder barrel.

Lubrication of motion pins is by grease nipple and gun; those for the reversing shaft and expansion links are grouped together on the motion bracket. The eccentric rod big ends run on Skefko self-aligning ball bearings. Valve and cylinder lubrication is by atomised oil delivered by mechanical lubricators. Steam-operated cylinder cocks of large dia. are fitted for quick draining of the cylinders of water which may accumulate. The reversing gear is used as on the standard 4-6-2 locomotives.

The dia. of the coupled wheels is 6 ft. 2 in. on tread, the same as the Class "7" locomotive; the tyre securing is also similar. Built-up weights in the wheels balance the revolving and 5 per cent. of the reciprocating weight. Sanding is by steam, and is fitted to the front of the leading coupled wheels, and to the front and rear of the driving wheels.

The bogie, tender and cab arrangements are similar to those of the Class "7" locomotive.

Below is a list of the principal suppliers of equipment provided for these locomotives:—

Exhaust steam injector, No. 10, Class K	Davies & Metcalfe Limited
Vacuum brake ejector, driver's brake valve, graduable steam brake valve, and associated brake details	Gresham & Craven Limited
Roller bearing axleboxes...	British Timken Limited
Self-aligning ball bearings for valve gear return cranks	Skefko Ball Bearing Co. Ltd.
Buffers	Geo. Turton, Platts & Co. Ltd.
Fibreglass insulating mattresses for boiler and firebox	W. Gilmore Smith & Co. Ltd.
Manually-operated blowdown valve	Everlasting Valve Co. Ltd.
Mechanical lubricators for cylinder lubrication, atomisers, and check valves	The Gulf Oil Co. (Great Britain) Ltd.
Superheater elements	The Superheater Co. Ltd.
Tri-Tone chime whistle	Crosby Valve & Engineering Co. Ltd.

**NATIONAL COAL BOARD BORROWING POWERS.**—The Coal Industry Bill proposes to extend the borrowing powers of the National Coal Board to a total not exceeding £300 million. Under the Coal Industry Nationalisation Act, 1946, the capital requirements may be met by advances by the Minister of Fuel & Power to a limit of £150 million in the first five years from the beginning of the Act—that is, until July, 1951—thereafter as Parliament determines. Further advances may be made without time limit provided the total sum outstanding at any one time does not exceed £300 million.

**NOMENCLATURE OF DRAWING INSTRUMENTS.** A further British Standard (B.S. 1709:1951) has been issued relating to drawing office equipment and materials. This standard gives the names and descriptions of over 80 drawing instruments. Compasses are dealt with first, these being divided into six classes, i.e., half-sets, compasses, dividers, bows, bow half-sets, and spring bows, the remaining instruments being sub-divided into five classes, i.e., ruling pins, prickers, steel tracers, beam compasses, and propor-

tional dividers. Scales most commonly appearing on proportional dividers are included in an appendix. Copies may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 2s.

**SULPHURIC ACID ALLOCATION.**—The Board of Trade announces detailed allocation schemes as from May 1 for the distribution to industry of sulphur and sulphuric acid to provide the most effective use of these commodities in the national interest. These schemes are based on a consumption of sulphur of approximately 100,000 tons a quarter. In general this means that users will receive supplies varying between 80 and 90 per cent. of their total consumption for 1950. Key industries such as iron and steel and metal extraction will be maintained at full output.

**WESTERN REGION FIRST-AID CONTESTS.**—At the Porchester Hall, London, W.2, on May 1, teams from all parts of the Western Region participated in the finals of the British Railways, Western Region, First-Aid Competition. This annual event is the culmination of eliminating contests held

throughout the Region and for which no fewer than 139 entries were received. The finals, contested by teams from Banbury, Barry, Bristol, Cardiff Docks, Hereford, Newport, Swindon, Taunton, and Ystalyfera, include individual as well as team tests. Mr. K. W. C. Grand, Chief Regional Officer, presided at the distribution of the awards and the presentations were made by Mrs. Grand.

**VICKERS LIMITED DIVIDEND.**—At a meeting of the board of Vickers Limited on April 19 it was decided to recommend a final dividend on the ordinary stock of 10 per cent. actual, less income tax, making 12½ per cent. for the year ended December 31, 1950, representing 10 per cent. and an additional 2½ per cent. having regard to the transfer to reserve in 1950 of supplementary dividends from subsidiary companies amounting to £3,036,110. The net profit was £1,643,644, against £1,625,402, after providing for income tax, etc., provision for depreciation on securities, £317,800, and transfer to provision for pensions £190,000, as compared with £13,155 in the previous twelve months.

## Light-Alloy Rolling Stock for London Transport

*Ninety coaches with bodies of aluminium alloy under construction for the surface lines*

**A**LTHOUGH British engineers have long been interested in the saving of weight and the increased resistance to corrosion offered by construction in aluminium alloys, only recently has a coach body made completely of aluminium alloys been built.

Weight saving is of special importance on railways with high frequency services operating over short sections, as the energy of fuel consumption is directly proportional to the weight. For this reason the London Transport Executive decided to undertake a large-scale experiment in the construction of light rolling stock. It investigated the relative merits of mild steel, rustless steels, and high tensile aluminium alloys, and considered both mechanical properties and cost. The previous standard construction had been in mild steel.

Either alternative considered was higher in first cost than the standard. The fuel and brake block savings that could be regarded as contributing to the capital cost were therefore considered. It was finally decided to use an aluminium alloy of the aluminium, magnesium, silicon type corresponding with the British Specification STA.7/A.W.10 for the load-carrying structure, supplied by Imperial Chemical Industries, Metals Division, under its designation of "Kynal" M.39/2.

This alloy has a reasonable strength when heat-treated and good resistance to corrosion. Its composition and chief mechanical properties are given below:—

Manganese	...	0.4	—0.9 per cent.
Magnesium	...	0.5	—1.0 per cent.
Silicon	...	0.75	—1.25 per cent.
Aluminium	...	...	Rest to 100 per cent.
0.1 per cent. proof	17.0	tons sq. in.	Fully heat-treated
Ult. strength	20.0	tons sq. in.	
Elongation	10.0	per cent.	

In considering the practicability of aluminium rolling stock London Transport took the advice of a Swiss Consulting Engineer, Dr. Koenig, a consultant to A.I.A.G. (Lausanne) and Imperial Chemical Industries Limited, and the engineers of the Swiss Federal Railways, and drew on the experience of the New South Wales Government Railways which have had an aluminium train in service for some years.

The stock has been designed and built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd., of Birmingham, under the direction of Mr. W. S. Graff-Baker, Chief Mechanical Engineer (Railways), London Transport Executive. The present contract is for 90 coaches, which are under construction; one prototype has been completed and sent to the South Bank for exhibition in the Festival of Britain.

The general appearance of these coaches, both exterior and interior, is identical with the latest steel coaches, so that profile and general finish remain unaltered. The construction, as previously standardised by London

Transport for steel stock, is of the stressed structure type.

The bogies and wheels are of steel and follow the standard pattern of L.T.E. bogies with one axle on each bogie driving, the bogie centre being offset towards this axle to give greater adhesion.

The leading particulars of the coaches are:—

Length, overall	...	51 ft. 1½ in.
Length between bogie centres	...	35 ft.
Max. width of body	...	9 ft. 8½ in.
Width over solebar webs	...	8 ft. 4½ in.
Height, rail to top of carlines	...	11 ft. 9½ in.
Weight on rails	...	26.65 tons
Number of seats	...	40
Max. passenger load (192 persons)	...	12 tons

This, the largest application of aluminium so far in the British rolling stock industry, has involved the adoption of new techniques and manufacturing methods to take the maximum advantage of the scope offered by this material.

The weight of the body, complete with all equipment, seats, finish, and so on, is reduced from 17 tons 16 cwt. to 11 tons 5 cwt. by the substitution of light metal for steel, a saving of 6 tons 11 cwt., of which 5 tons 18 cwt. is contributed by body structure and 13 cwt. by brake, door, electrical equipment, and so on. The saving is thus 37 per cent. for the body, complete with equipment, and 20 per cent. for the vehicle complete with bogies and motors.

### General Construction

The build-up of the structure generally follows standard practice; the monitors, purlins, cantrails, waistrails, solebar and longitude assemblies are all conventionally positioned. When the design was first studied, several points were borne in mind to decide the form of members to replace one or more steel sections. They included the improved disposition of material afforded by the use of extruded sections, which allow more freedom in the design of profiles, and the increased moment of inertia required to obtain a stiffness and rigidity comparable with the values of the steel coach.

With the exception of a few members such as body end corner pillars and other details which are castings or forgings, the structure is constructed from extrusions and sheet. Conventional methods of attachment and assembly are used, including riveting, bolting and welding, although pending further investigations welded joints have been avoided where high loads are possible. The rivets used are of the same material as the rest of the structure. Where steel bolts are used they are zinc or cadmium sprayed.

The body, as in steel stock, is designed to carry its full share of all loads, the only parts not assumed part of the unit construction being floor sheets, glass, interior panels and furnishings.

The roof structure is of conventional type with some improvements made possible by the use of extruded sections. The main longitudinal load carrying members are roof cantrails and monitor rails running unbroken from end to end of the coach, as it is considered advantageous that as many longitudinal members as possible be allowed to run the full length of the coach to obtain the required stiffness under vertical loads. Also, in a collision the maximum amount of structure is brought into play, ensuring that the energy is dissipated with the least damage to passengers and coach.

The roof cantrail is of interesting design; it is used to locate the roof structure on bodysides, form a large rain-water gutter (a feature peculiar to this type of coach), locate the carlines or cross-members of the roof, and form an attachment for the roof sheets.

The other main longitudinal member in the roof is the monitor rail, which is of intricate profile: it has to fulfil many subsidiary functions besides forming an important structural member. It is placed immediately below the carlines to give a direct run from end to end of the roof. Attachment is made to every carline by ½-in. rivets passing through the two upper flanges of the monitor and the lower flange of the zed carline. This allows the carlines to run in one piece for the whole span of the roof.

Other uses made of the monitor include the attachment of the vertical steel grab poles at doorways, the fixing of hand grips for standing passengers, the formation of cable ducts, the location of fluorescent light fitting extrusions, and the support of internal furrings and panels. It will be seen that full use has been made of the extruding process, and the designers have developed the full possibilities offered.

The steel tubes or grab poles are positioned at every windscreen and run vertically between the monitor in the roof and the longitude in the floor structure, providing effective ties for the transmission of load between floor and roof. Between monitor rails the roof sheet is stiffened by purlins of "top hat" section running in short lengths between carlines. Thus the basic structure is formed by four main longitudinal members, crossed at short intervals by carlines, forming a stiff lattice work on which the roof sheets are laid and stiffened further by purlins.

The roof sheets are made of M.39/2 alloy in the fully heat-treated condition, left in their natural colour on the finished car. They are laid across the roof structure in the orthodox manner, the joints being lapped at carlines and attached to the carline section by ½-in. dia. rivets. The ends of the roof are tied to the body ends by a stiff, centrally-disposed diaphragm plate of ⅝ in.

material, connecting the monitors with the end posts of the coach; the whole is covered by a pressed canopy to form the required profile. The roof sheets between door pocket sections of the car are of 15 gauge (0.072 in.), and those across double doorways, where loads are expected to be greater, are of 14 gauge (0.083 in.).

Ample drainage from gutters is provided by 1 in.  $\times$  2  $\frac{1}{2}$  in. rectangular drain tubes positioned adjacent to each sliding door and carrying the water away inside the body walls. The gutters which form a step at the junction of roof and bodysides are not visible in the end view of the car, as the end canopy spans the full width of the body.

### Bodysides

Because of the intensive urban traffic with which these coaches have to deal it is essential that passengers should be able to board and alight from trains in the shortest possible time. This has made it necessary to have wide unobstructed doorways along the bodyside. There are six sliding doors a side on a non-driving car, four positioned in pairs between bogie centres. This layout, ideal from the operator's point of view, presents problems to the engineer concerned with designing an integral structure acting as a unit. There are two windows 5 ft. in length between double doorways.

The basic structure of the bodysides is formed from extrusions and  $\frac{1}{8}$  in. thick high-tensile aluminium alloy sheet. The framing is formed between the body cantrail assembled in one length, and the skirting rail, an extrusion designed to extend from the top of the solebar out to the "flare" of the body panels. Also running longitudinally between doors just below the lights is the waist-rail, a stiff member between pillars which effectively provides the upper boundary of the lower coach structure.

Between waistrail and skirting rail, a distance of approximately 30 in., is divided into three spaces by two panel stiffeners running between pillars. Thus all expanses of bodyside panelling are supported by extrusions along the four edges; the larger panels are broken into small rectangles to increase the effectiveness of the sheet by greater stability. While the "flared" body panels extend approximately 8 in. beyond the solebar, the pillars are attached directly to the solebar by taking them vertically from waist to solebar.

The centre pillars are joined to the solebars with  $\frac{7}{16}$  in. rivets. A pillar foot is formed by a short length of channel section, the web lying along the solebar with the flanges extending upwards and locating each side of the pillar extrusion. Generally, all rivet heads formed on the job are either flat or cone in shape, but those used to fix the  $\frac{1}{8}$  in. exterior body panels to the extrusions are countersunk on the outer face to maintain the clean exterior surface.

The sliding doors are accommodated in pockets in the large pillars at each side of the doors, so there is an external structure formed by the vertical pillar

extrusions and skin, and an internal structure to support the interior finish and locate the windscreen structure.

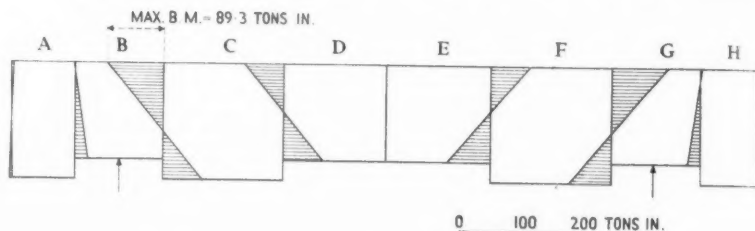
The corners of the body are formed by "Alpax" castings with an average thickness of  $\frac{1}{4}$  in. attached to the floor structure and bodyside and end skins. The fabrication of such a pillar from extrusions and pressings was considered expensive and awkward, whilst the casting of such a component presented little difficulty and the material used has sufficient strength for the work. In production these castings are assembled as part of the body end assembly. "Alpax" is an aluminium alloy with high silicon content yielding exceptionally sound castings due to low contraction figure; it well resists corrosion.

### Floor Structure

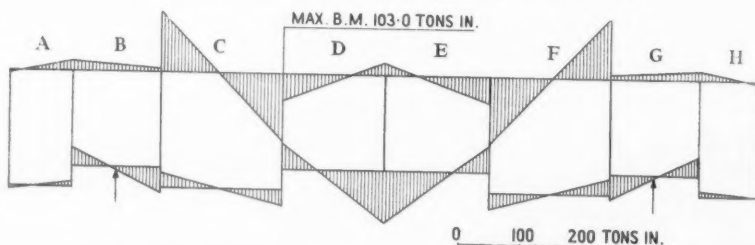
The floor structure is of sturdier construction than the roof or bodysides, as it must first receive and then transmit

the high passenger load and also local concentrated loads caused by electrical and mechanical equipment to the main body structure. The frame is formed by four longitudinal members approximately 7 in. deep; these are the solebars which are unbroken for the full length of the car, and the longitudines which run in one length between bolsters. The longitudines are continued from bolster to headstock with a somewhat heavier section. In this way the bolster is able to be made an extremely stiff member extending between solebars, and the longitude section stiffened at the ends where shocks from the coupler are highest.

The headstock is formed by a stiff extrusion of roughly channel section profile, and the whole of the end structure is strengthened by a large gusset plate of  $\frac{1}{4}$  in. plate extending for the full width of the floor and 3 ft. towards the bolster. The transverse members



Bending moments acting on pillars (one bodyside)



Bending moments acting on roof and lower coach (one bodyside)

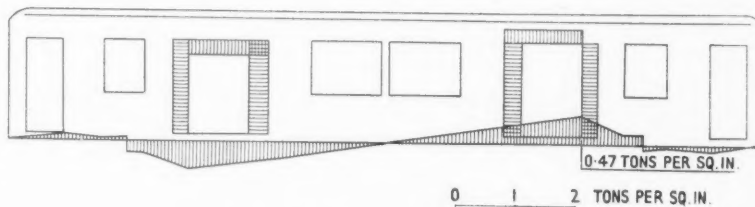


Diagram of principal shear stresses

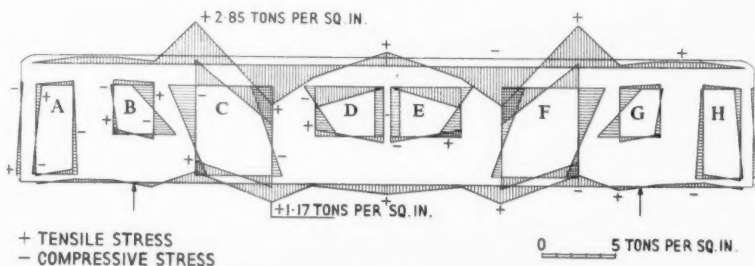


Diagram of combined axial and bending stresses



of the floor structure are of T and Z section, running for short lengths between the longitudinal members, attachment being to the webs by riveted knee joints. Where heavy equipment is to be carried, additional cross members of Z section run in one piece between solebars, passing beneath the longitudines.

The body bolster is of riveted construction formed from angle extrusions and flat plates into a box section. The depth at centre pivot is  $11\frac{1}{2}$  in. with  $\frac{1}{2}$  in. thick angles and cover plates, and webs of  $\frac{1}{2}$  in. plate. At solebars the bolster depth is nearly 7 in.

The floor sheets are of corrugated section made from 16 gauge, .064 in. sheet; the corrugations are laid across the coach.

Full-scale vertical and horizontal loading of the completed structure has not yet been undertaken, but a series of loads was applied to an 18 ft. length incorporating a large centre window and one of the double doors. Strain gauge tests proved the structure to be capable of withstanding the high loading conditions which are regularly met with in service.

#### Stress Calculations

During the design, the structure was subjected to a thorough theoretical stress investigation. All important parts of the structure were considered, and the load and bending moment distributions together with stresses calculated.

It is generally agreed that the main

load-carrying structure of a coach should be considered as two vertical trusses, necessarily of the Vierendeel type, as windows and door apertures dictate the form of construction.

Each truss is composed of two longitudinal beams formed by the structure above and below the windows and doors, which are connected by upright members—the pillars. This form of structure approaches closely to the build-up of many coaches, but nevertheless the best of theoretical methods entail certain assumptions regarding behaviour of structure and the type of loading. Provided the mathematical treatment of the rectangular framed structure is sound, the accuracy of the results will depend entirely on the assumptions initially made regarding the effectiveness of each structural member of the car. When these results are required at an early stage in design, the assumptions can be based only on previous experience gained with stock of similar construction.

The assumptions made regarding the behaviour of the structure of these light alloy vehicles are that:—

The unity of the whole structure is affected by the large cut-outs necessitated by doors and lights, with the result that deflections under vertical loads take place about two neutral axes, one in the roof structure and one in the lower coach structure below lights and doors.

The roof structure is composed of the cantrail group, with the portion

of roof sheet adjacent to cantrails and monitor rail. It has been found from full-size tests that the centre part of the roof sheet and the purlins contribute little to the effective stiffness of coaches between bolsters when subject to vertical loads, and consequently have not been relied on in the calculations.

The lower coach structure is formed by longitudines and solebars, together with skirting rails, side panels and waistrails where these occur at saloon portions of the coach. The floor sheets are neglected, as are cross-members, the chief function of these parts being to support the component equipment and passenger loads and transmit them to the main structure of the car.

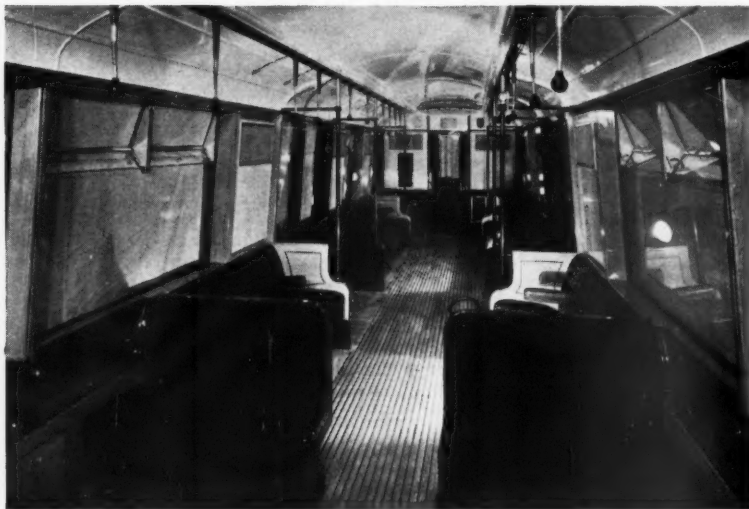
The structural part of the pillars is formed by the vertical extruded members together with the exterior panelling attached thereto.

All internal panelling, furnishing and fittings are neglected, although there is little doubt that these parts help to carry loads because of the nature of their connection to the load-carrying structure.

Using the above assumptions as a guide, the structure of the coach can be represented as a Vierendeel Truss, and various data required for the solution may be calculated. These data include cross-sectional areas, stiffness factors and moments of inertia, effective lengths between intersection of neutral axes, and so on.



Left: roof structure complete and ready for assembly on body, and, right: body end unit



General view of interior of finished coach

Usually, loading conditions are of a simple and determinate nature, whilst the structure is statically indeterminate. The solution of the rectangular framed structure when subjected to various loading conditions is effected by use of a form of the standard equation of work, assuming that when the structure is in a state of equilibrium the work done by all the internal forces equals the total work done by the external loads.

As a first step towards a solution one member in each rectangular frame is cut and sufficient forces introduced to represent completely the original function of the member. It is therefore necessary to introduce three forces, the combined actions of which will represent any con-

dition of bending moment, shear force and axial load carried by the continuous member.

Some of the more approximate methods of stressing assume the introduction of one unknown force in each rectangle, and whilst this eases considerably the burden of calculation, the results obtained are on the whole unreliable and not sufficiently accurate for use on a new design.

Quite generally the solution used is based on the cutting of one member in each frame, the application of the external loads thus causing movement at each cut, and then the introduction of loads in the position and direction of the unknown forces to bring the faces of the cuts together and in line.

The equation used to determine the unknown forces is:—

$$X_1 \delta_{1,1} + X_2 \delta_{1,2} + X_3 \delta_{1,3} + \dots = \delta_{1,0}$$

Where  $\delta_{1,0}$  is deflection at cut 1 in direction of  $X_1$  when all external loads are applied.  
 $\delta_{1,1}, \delta_{1,2}, \delta_{1,3}$  are deflections at cut 1 in direction of  $X_1, X_2, X_3$  respectively, when unit loads are applied in place of  $X_1, X_2, X_3$  respectively.  
 $X_1, X_2, X_3$  are unknown forces applied at cuts 1, 2, 3 respectively.

Hence there is a series of simultaneous equations, there being three times as many equations as there are rectangular frames. In this manner the loads in all members are obtained and the stresses obtained directly by the use of standard formulæ.

This method of stressing has been expounded more fully by Dr. Karl Sutter in *Economie et Techniques des Transports* (June-September, 1947), and it has proved most useful in application to steel coaches as well as aluminium alloy structures.

The calculated stresses are quite low under normal loading conditions, the maximum being just below 3 tons per sq. in. above one of the double doorways. The distribution of bending moments throughout the structure and the stresses are illustrated in the accompanying diagrams.

**DISPLAY OF LIGHTING BATTERIES.**—The exhibits on the Pritchett & Gold & E.P.S. Co. Ltd. stand in the Castle Bromwich section of the British Industries Fair include typical stationary cells of the open and closed top types. These cells, housed in strong glass containers and available in capacities of from 10 to 1,080 amp. hr. at the 10-hr. discharge rate, are widely used for emergency lighting, switchgear operation or other duties in industry generally, power stations, hotels, office buildings, and so on. Also on display are cells for train-lighting, aircraft batteries, and a heavy-duty battery of the type fitted to London Transport buses.

## Modern Spanish Motive Power

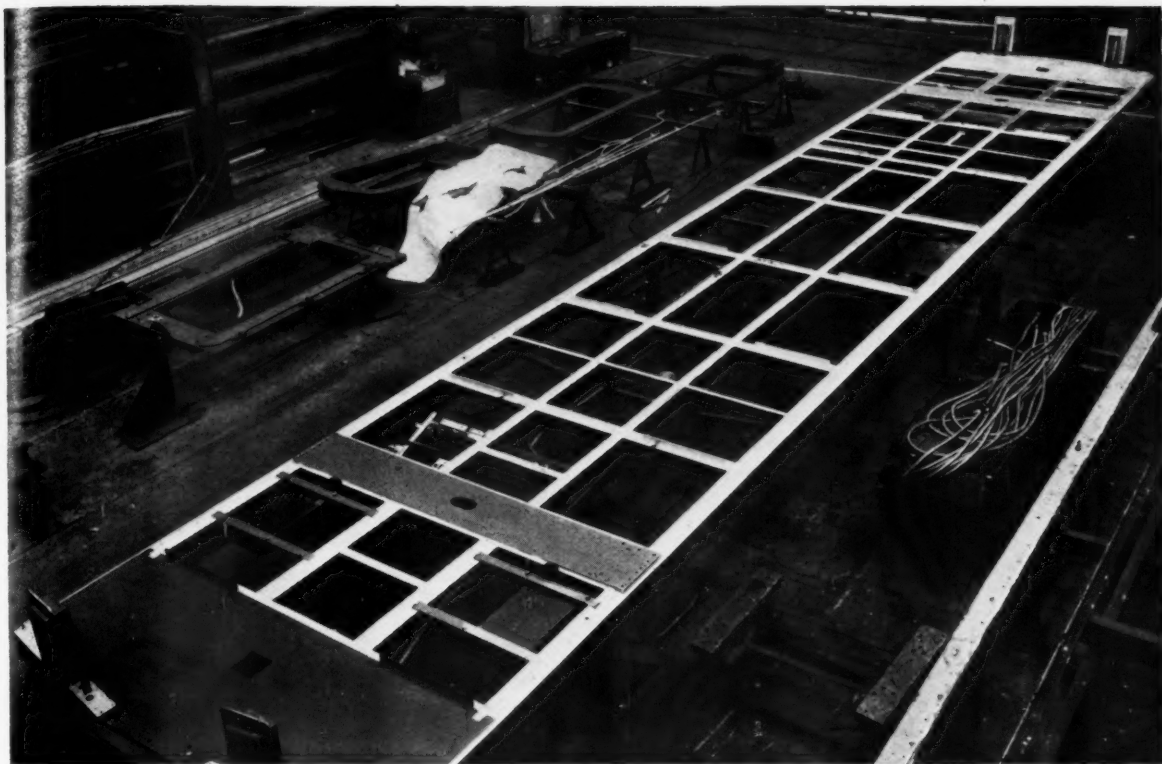


A 4-8-2 express locomotive of the former M.Z.A. Railway at Barcelona Termino, Spanish National Railways

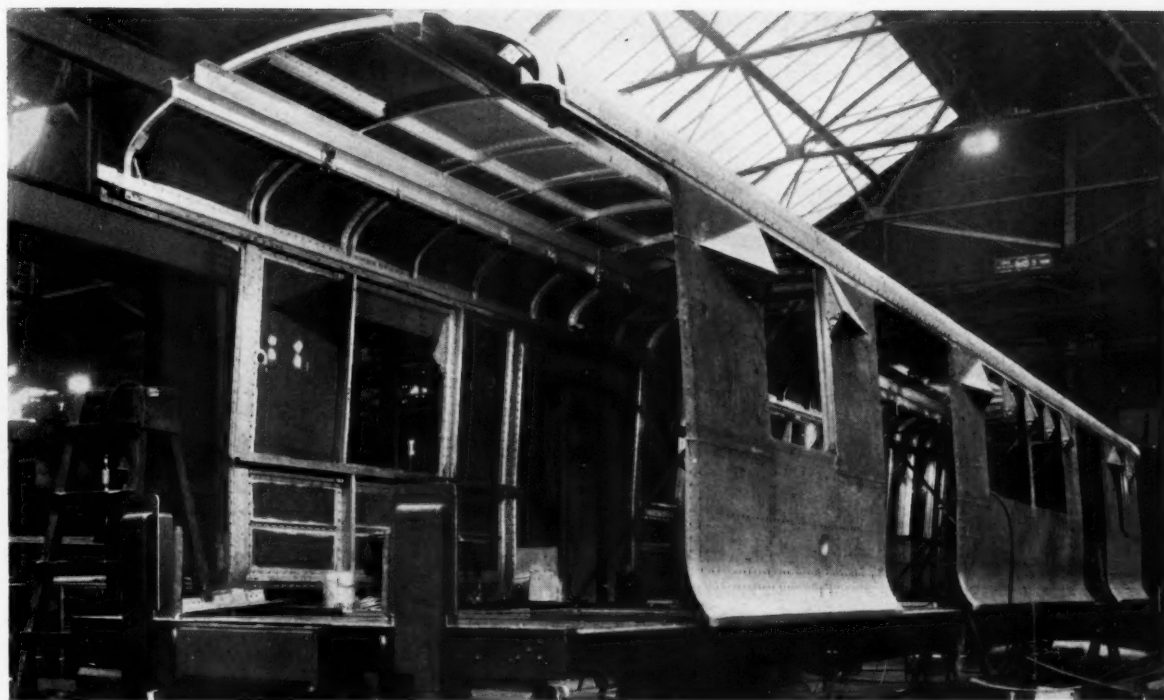
Photo]

[P. C. Allen

## Light-Alloy Rolling Stock for London Transport



*Floor structure complete*



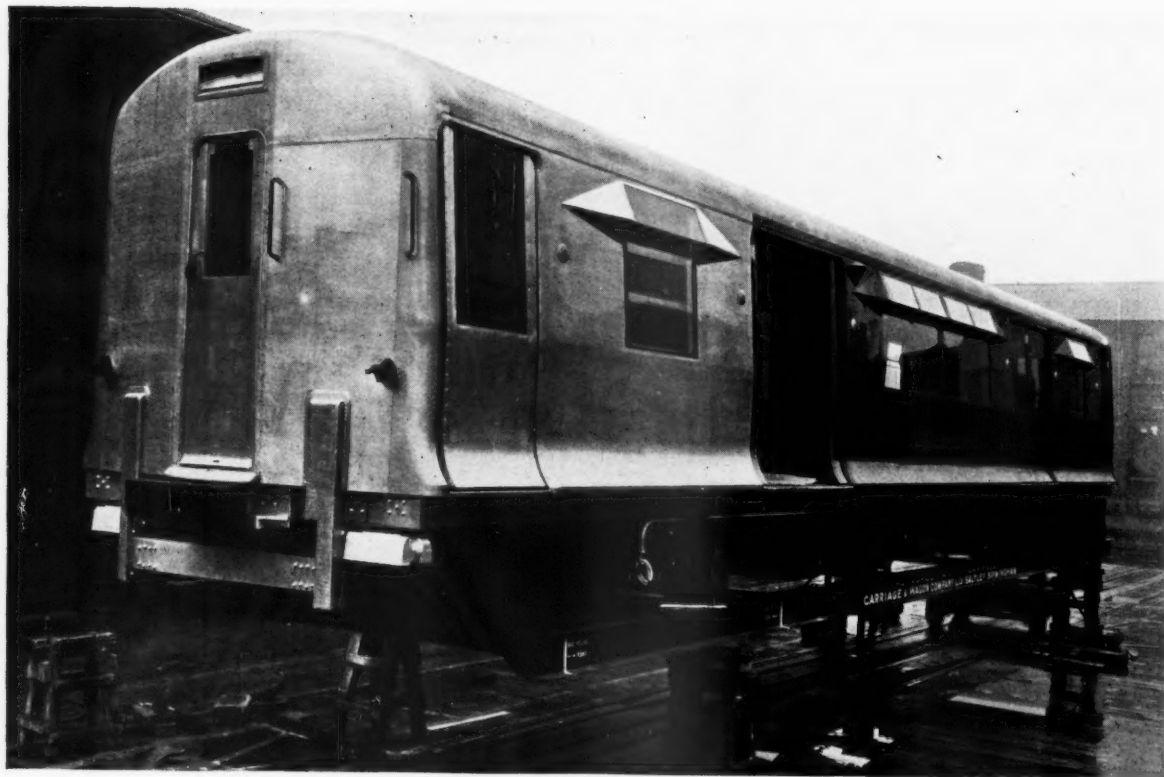
*Coach partly erected*



## Light-Alloy Rolling Stock for London Transport



*Structure of coach nearing completion in erecting shop*



*Finished coach awaiting transport from works*

## New Bridge at Over Junction, Western Region

*Replacement of a Brunel structure carrying original South Wales main line over River Severn*

A NEW double-track bridge over the River Severn at Over Junction west of Gloucester, on the original main line to South Wales, is being constructed by the Western Region of British Railways to replace a bridge designed by Brunel and opened in 1850. It will improve the alignment of tracks and eliminate a permanent 30 m.p.h. speed restriction on the main lines.

The line between Gloucester and Grange Court was built by the Gloucester & Dean Forest Railway, leased from its opening to the Great Western Railway, which absorbed it in 1875. This railway also built a branch from Over to the Gloucester Docks, which was completed by the G.W.R. and opened in 1854. The Over Junction Bridge, spanning the western arm of the Severn, is a fixed span, unlike that across the eastern arm of the river, nearer Gloucester, where the provision of a swing bridge was forced on the company by local authorities.

### "Balloon" Compression Flanges

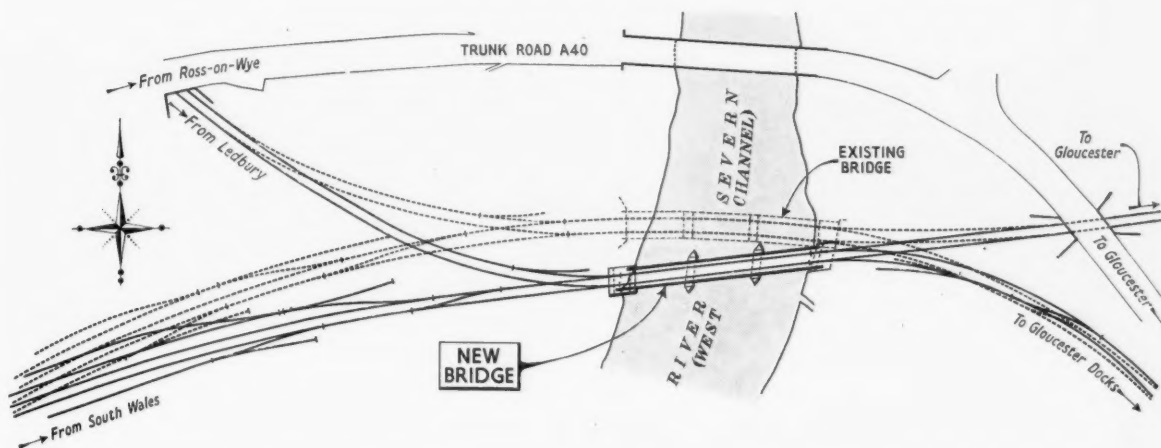
The existing bridge, which will be removed when the new bridge alongside is brought into use, was strengthened in 1880, but the original wrought iron main girders, remarkable for their "balloon" compression flanges, were retained; they have therefore been in use for more than a century.

Before 1880 the bridge was supported on timber piles, and there were all-timber approach spans. When it was strengthened, bents of cast-iron screw piles, filled with concrete, were put in.

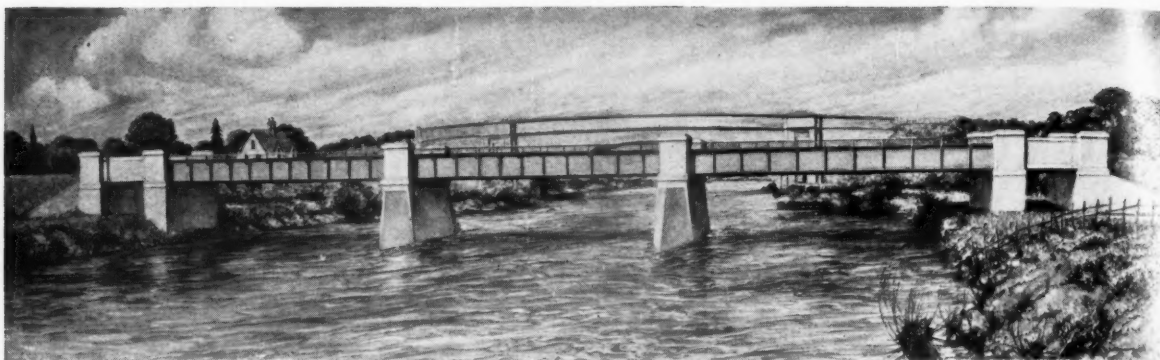
The existing bridge has three river spans, each about 73 ft. long. Although built on a curve, the main girders (three to a span) are bolted together and are to some extent continuous girders. At



(Top) General view, and (bottom) close-up view from Gloucester end, of bridge at Over Junction now being replaced



Relative positions of original and new bridges, with track realignments, at Over Junction



*Impression of new bridge across River Sever at Over Junction, from a water colour by Mr. J. Dewar-Mills, Chief Engineer's Department, Western Region*

the Gloucester end of the bridge there is a 25-ft. span supported on the ends of the main girders of the adjacent river span.

The new bridge will have three 70-ft. spans over the river, and a 15-ft.

approach span at each end. The main spans are through-type plate girder spans of riveted construction, with cross girders and concrete jack-arch flooring. Centre girders have been eliminated, the cross girders, 25 ft. long, spanning between the

main girders outside the tracks. The piers will be fabricated of mass concrete, brick-faced, and will be carried on reinforced concrete pile foundations. The approach spans will be of pre-cast reinforced concrete beams.

## Internal and External Gear Shaper

*Production of spur and helical gears of large diameter*

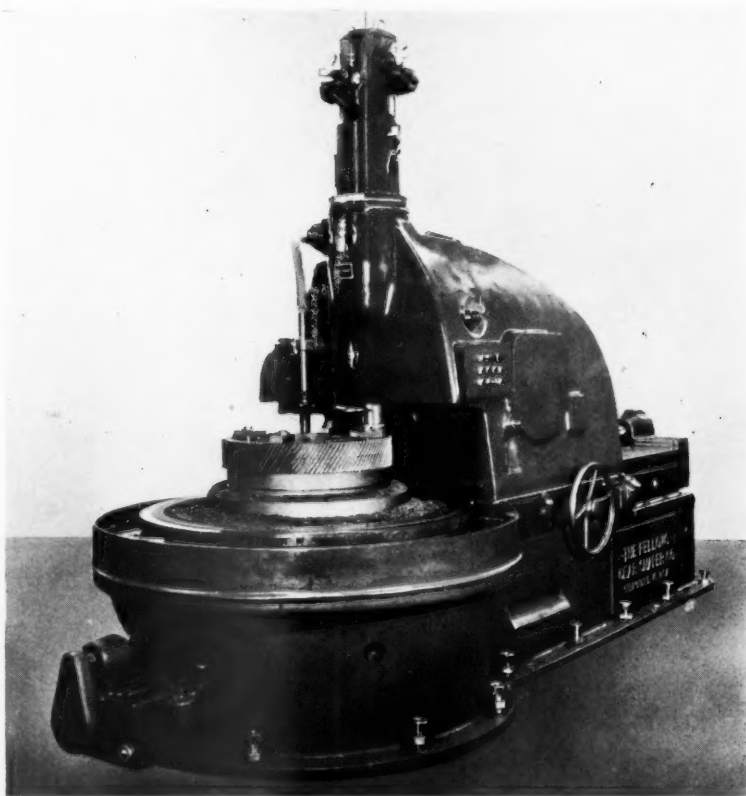
**A** GEAR shaper, designed to provide a rapid and accurate means of producing internal and external spur and helical gears of large diameter, has been produced by the Fellows Gear Shaper Company. This tool, which is manufactured in the U.S.A., has resulted from redesigning the Fellows 100 in. machine to include the cutting of helical and spur gears.

The agents, Alfred Herbert Limited, Coventry, recommend that where high-ratio mating external gears or high-ratio mating external and internal gears are to be cut, their engineering department should be consulted because of interference conditions encountered with high ratios. Similar precautions are also recommended when the number of teeth in an external gear closely approaches the number of teeth in a mating internal gear, because similar interference conditions may exist.

The capacity of the machine is as follows:—

Maximum pitch dia., external	100 in.
Minimum pitch dia., external	28 "
Maximum pitch dia., internal, approx.	100 "
With 112 in. outside dia., depending on pitch and design of gear	
Minimum pitch dia., internal, approx.	46 "
Depending on pitch and design of gear and size of cutter	
Maximum diametral pitch, spurs	2
Maximum diametral pitch, helicals	4
Maximum helix angle	35 deg.
Maximum face width	8 in.
Approximate pitch dia. of cutter	8 "

The approximate weight of the machine and complete electrical equipment is 18 tons 6 cwt.



*Fellows gear shaper*



## RAILWAY NEWS SECTION

## PERSONAL

## MR. JOHN ELLIOT VISITING UNITED STATES

Mr. John Elliot, Chairman of the Railway Executive, left Southampton on May 2 in the *Queen Elizabeth*, on a short visit to the United States, where he will meet the executive heads of several of the largest American railways, and will inspect the British Railways organisation in the U.S.A. for development of tourist traffic to Great

Britain. Mr. Elliot, who is a Director of Thos. Cook & Son Ltd., will have discussions with Mr. Harold White, President of Thos. Cook & Son Inc., New York. He is due to arrive back in England on May 25.

for the cable railway, pipe line and approaches to the Ritom generating station itself. In 1922 Mr. Lucchini became Deputy Engineer of the Barberine power station works. He was Chief of the Electrification Department offices at Olten from 1923 to 1926, and then Deputy Chief Engineer at the head offices, of the Federal Railways. He was appointed Chief Engineer of No. 2 Region of the Federal Railways in 1930, and at the end

Dr. Hugo Gschwind, General Manager (Legal & Commercial), Swiss Federal Railways, who, as recorded in our March 30 issue, has been appointed President of the General Management, was born at Therwil, Switzerland, in 1900. He was educated at local schools and at Basle, Paris, and Madrid Universities, gaining his doctorate in economic science at the University of Basle in 1924, with his thesis "Economic Fluctuations in Switzerland."



*Mr. Cesare Lucchini*

President of General Management, Swiss Federal Railways, 1950-51



*Dr. Hugo Gschwind*

Appointed President of General Management, Swiss Federal Railways

Britain. Mr. Elliot, who is a Director of Thos. Cook & Son Ltd., will have discussions with Mr. Harold White, President of Thos. Cook & Son Inc., New York. He is due to arrive back in England on May 25.

of 1938 became Manager of that Region. He was appointed General Manager (Engineering & Operating) in 1947, and President of the General Management, in 1950.

## ULSTER TRANSPORT AUTHORITY

Mr. Cesare Lucchini, President of the General Management, Swiss Federal Railways, who, as recorded in our March 30 issue, has retired, was born at Arasio di Montagnola (Ticino) on July 20, 1885. He studied at technical high school from 1904 to 1908, and took a diploma as civil engineer. In 1908 he entered the service of the former Gotthard Railway, for the doubling of various lines, and from January, 1913, to November, 1914, was in charge of widening works at Chiasso Station. From December, 1914, to the end of 1915, he was a military engineer engaged on the Murten and Bellinzona fortifications; and from 1916 to 1918 he was Engineer at the Ritom power station works, from September, 1918, he was responsible

The Northern Ireland Minister of Commerce has announced the appointment of Mr. J. Sydney Rogers as Chairman of the Ulster Transport Authority until September 1, the remainder of the present Board's term of office. Mr. Rogers is a Member of the Authority and has acted as Chairman of the former Northern Ireland Road Transport Board. Mr. J. A. Clarke, Chief Executive Officer of the Authority, has been appointed General Manager, and took up duties in that capacity on May 1. Mr. Clarke will be responsible for the general operations and conduct of the Authority. Mr. James Courtney, as Chief Engineer of the Authority, is responsible for civil, mechanical and electrical engineering, and for technical developments.

After banking experience in Switzerland, Paris, and Berlin, he was in 1936 elected councillor of State for the Canton of Basel-Land, and thereafter occupied a number of positions in the Cantonal administration, including that of Director of the Internal Affairs Department, where he was concerned with railway and inland navigation questions. In 1937 he undertook a study tour of U.S.A. and Canada. He was appointed as a General Manager of the Swiss Federal Railways in October, 1949.

Mr. K. C. Bakhle, Chief Commissioner of Railways, Indian Railway Board, has proceeded on leave preparatory to retirement.

The Railway Executive has announced that Mr. H. C. Lang, Assistant Chief Officer for Labour & Establishment, Southern Region, has been appointed Regional Staff Officer, Southern Region, in succession to Mr. O. W. Cromwell, who is retiring.



Mr. J. E. Bell

Appointed Locomotive Works Manager,  
Ashford, Southern Region,  
British Railways

Mr. J. E. Bell, M.I.Mech.E., A.M.I.Loco.E., Works Manager, Ashford, Southern Region, who, as recorded in our February 16 issue, has been appointed Locomotive Works Manager, Ashford, was educated at Radley College, and joined the Southern Railway as a pupil of the late Mr. R. E. L. Maunsell at Ashford Works in 1925. In 1929 he became Assistant Locomotive Testing Engineer, and in 1933, Assistant Locomotive Maintenance Engineer. In 1934 he was appointed Assistant for the Isle of Wight in charge of C.M.E. Locomotive Running and Traffic Departments staff. Mr. Bell was released for service with the Transportation Branch, Royal Engineers, in 1940. He served in France with 153rd and 154th Railway Operating Companies, the two Supplementary Reserve companies of the L.N.E.R. and G.W.R. respectively. In 1941 he was promoted Major, as 2nd in command of No. 3 Railway Operating Group, and in the next year to Lt.-Colonel, to command No. 3 Railway Operating Group. He then went with No. 1 Group to North Africa to assist the Algerian Railways and the Tunisian Railways in the operation of the railways. In 1943 he was appointed Assistant Director of Transportation (Railway Operating) at A.F.H.Q., and in 1944 he was transferred to G.H.Q., India, and later commanded No. 8 Indian Railway Operating Group, which then was employed assisting on the broad-gauge main line of the Bengal Assam Railway between Calcutta and Siliguri. He was mentioned in dispatches for work in North Africa. Mr. Bell was released from military service, with the honorary rank of Lt.-Colonel, and was appointed Assistant Works Manager, Brighton, Southern Railway, in 1945. He became Works Manager, Ashford, in 1946.

The Minister of Transport has appointed Colonel Mark Whitwill to be Chairman of the Transport Users Consultative Committee for the South West Area. The Minister hopes to appoint the full Committee for the area shortly.

Mr. P. J. de Steiger, who spent 1950 in England studying the manufacture and application of Silenthloc Limited products, has been appointed Technical Manager of



Mr. L. I. Sanders

Appointed Carriage & Wagon Works Manager,  
Ashford, Southern Region,  
British Railways

Silenthloc (Australia) Pty. Ltd. The company is jointly owned by Leggett Products Pty. Ltd., Melbourne, and Silenthloc Limited, London.

Mr. L. I. Sanders, Assistant to Works Manager, Ashford, Southern Region, who, as recorded in our February 16 issue, has been appointed Carriage & Wagon Works Manager, Ashford, began his apprenticeship with the Southern Railway in 1926 at Eastleigh Works. He went to Lancing Carriage Works in 1930 as Assistant Foreman, Machine Shop, and became Foreman in the Pullman Car Shop in 1932 and in the Lifting Shop the following year. In 1936 he became Assistant in the Outdoor Carriage & Wagon Department, Waterloo, and was appointed Progress Assistant, New-Engine Building, Waterloo, in 1942. He received a Commission in a Railway Workshops Company, Royal Engineers, in 1944 and saw service in the Middle East. Mr. Sanders was appointed Workshop Assistant, Ashford, in 1946 and became Assistant to Works Manager there in 1947. He re-wrote "The Railway Carriage & Wagon Handbook" in 1935-36.

Mr. John Elliott, Chairman, Railway Executive, accompanied by Mr. David Blee, Member, Railway Executive, Mr. K. W. C. Grand, Chief Regional Officer, Western Region, and Officers of the Western Region, paid a visit to the Margam and Abbey Steel Works, Port Talbot, of the Steel Company of Wales Limited, on April 27 and discussed transport arrangements with Mr. Julian Pode, Managing Director of the company.

Mr. Leslie A. Luke, Public Relations Officer, Coras Iompair Eireann, has been appointed London Local Editor of the Irish News Agency.

#### PRESENTATION TO MR. W. H. JOHNSON

At a re-union dinner of former L.N.E.R. officers held at the Great Eastern Hotel, Liverpool Street, on April 27, a presentation was made by his old colleagues to Mr. W. H. Johnson, Secretary, London & North Eastern Railway Company, from 1943 to 1948, and subsequently Secretary of the Hotels Executive, on the occasion of his retirement.



Elliott

[&amp; Fry

The late Lord Walkden

General Secretary of the Railway  
Clerks' Association,  
1906-36

We regret to record the death on April 25, at the age of 77, of the Rt. Hon. Baron Walkden of Great Bookham, who was General Secretary of the Railway Clerks' Association from 1906 to 1936, and was Labour Member of Parliament for South Bristol between 1929-31 and 1935-45. He was educated at Merchant Taylors' School, Ashwell, and joined the Great Northern Railway as a junior clerk in 1889. After service at Thackley, Melthreth, and Leicester, he was appointed as Principal Claims Clerk in the Office of the District Goods Manager, Nottingham, and later became Goods Traffic Canvasser for Nottingham & District. In 1905 he was appointed Goods Agent, Fletton, but left that position the following year to become General Secretary of the Railway Clerks' Association. He had been a foundation member of the Association and had been instrumental in securing its inauguration in 1897. At the time of his retirement as General Secretary in 1936, membership of the Association had increased from some 6,000 in 1906 to some 60,000. For a number of years he also served as a member of the Executive Committee of the International Transportworkers' Federation. In 1921 he became a member of the reorganised general council of the Trades Union Congress, which elected him Chairman in 1932. He entered Parliament as Member for South Bristol in 1929, was defeated in 1931, but was again returned for South Bristol in 1935 and continued as its representative until his elevation to the peerage in 1945. He joined the administrative committee of the Parliamentary Labour Party in 1943. When the third Labour Government came to power in 1945 he received the household appointment of Captain of the Yeomen of the Guard, and resigned that office in 1949.

Dr. C. E. Phillip, who, as recorded in our April 13 issue, has been appointed Medical Officer, Leeds, North Eastern Region, British Railways, was educated at Bootham School, York. He qualified at Edinburgh and became House Surgeon, Killearn Emergency Medical Service Hospital. After two years as a general practitioner in Crieff, Perthshire, he was called up for R.A.F. service, and became Senior Medical Officer, Persian Gulf. On

demobilisation he proceeded to London University, and took the Diploma of Public Health examination. Before taking up his present appointment with British Railways, Dr. Phillip was Assistant Medical Officer of Health to the City of Bradford.

Mr. D. N. Turner, Chairman, Staveley Coal & Iron Co. Ltd., is retiring from the board as from July 1.

**SCOTTISH REGION APPOINTMENTS**  
British Railways, Scottish Region, announce the following appointments:—

Mr. D. Frew, Assistant to Accountant, London Midland Region, to be Assistant Accountant, Scottish Region.

Mr. C. Scott, Assistant to Civil Engineer, to be Assistant Engineer (Works), Civil Engineer's Department.

Mr. R. T. Fitzpatrick, Permanent Way Assistant to Civil Engineer, to be Assistant Engineer (Permanent Way), Civil Engineer's Department.

Mr. R. L. Ireland, Chief Clerk (Staff & Administration), Public Relations & Publicity Department, to be Publicity Assistant, Public Relations & Publicity Department.

Mr. M. Whileblood, Goods Agent, Leicester (Braunstone Gate), to be Assistant to District Goods Superintendent, Scottish Region.

Mr. D. Maxwell Buist, Export Director of the British Electrical & Allied Manufacturers' Association, has been elected Chairman of the Council of the Institute of Export for the Session 1951-52, and Mr. J. P. Ford, Director & General Manager of Associated British Oil Engines (Export) Limited, as Vice-Chairman.

Mr. Albert W. Ives, Manager of the Conducted Tours Department of Thos. Cook & Son Ltd., retired on April 30.

Those recently elected Members of the Institution of Mechanical Engineers include Mr. L. C. Grubb, Chief Mechanical Engineer, Pretoria, South African Railways.

Mr. Leslie Gamage, Vice-Chairman & Joint Managing Director of the General Electric Co. Ltd., who has been on a visit to Ceylon, Australia, and Singapore, arrived back at Heathrow Airport on April 29.

#### CANADIAN NATIONAL RAILWAYS

The following appointments in the Traffic Department, Canadian National Railways, have recently been announced:—

Mr. H. W. Craig to be Assistant to Vice-President in charge of Traffic.

Mr. H. L. Lapointe to be Assistant to Assistant Vice-President, Freight Traffic, Canadian lines.

Mr. R. F. A. Riesco has retired from the board of Metropolitan Railway Country Estates Limited.

Among those who arrived at Southampton from New York on April 26 in the *Queen Elizabeth* was Mr. E. W. Marten, Managing Director of Associated Locomotive Equipment Limited.

The United Kingdom representative on the Materials Handling Mission to the U.S.A. sponsored by the Organisation for European Economic Co-Operation, is Mr. R. G. Winton, Technical Manager, Lansing

Bagnall Limited. The *Mission*, which left Cherbourg on April 24, will be in the United States for six weeks.

We regret to record the death on April 24, at the age of 63, of Mr. R. E. Nunn, District Transportation Superintendent (Traffic), Madras & Southern Mahratta Railway, from 1931 to 1947.

The late Mr. Harry Parsons, J.P., M.I.Mech.E., who was Chairman of Parsons Engineering Co. Ltd., and Chairman of Southampton Harbour Board from 1923 to 1944, left (duty paid £88,702, £165,437.

Mr. R. H. Farmer, a Vice-Chairman of the Road Haulage Association and National Chairman of the R.H.A. Express Carriers Group, has been appointed to represent the Association on a committee of the British Standards Institution set up to consider the standardisation of pallets.

The following notifications appeared recently in *The London Gazette* under the heading of Supplementary Reserve of Officers, Royal Engineers, Movement Control Section:—

Lieutenant (War Substantive Captain) James McDonald Matheson from A. & S.H. Emergency Commission, to be Captain, February 1, 1951, with seniority August 12, 1946.

The undermentioned Lieutenants from Emergency Commissions to be Lieutenants February 1, 1951:—

Eric Herbert Humphries with seniority April 13, 1944.

Arthur Kenneth Galloway with seniority March 3, 1945.

## Presentation to Sir Eustace Missenden



*Members and Officers of the Railway Executive and Chief Regional Officers on April 19 presented Sir Eustace Missenden, who retired in January as Chairman, Railway Executive, with an inscribed silver salver*

Left to right: Messrs. C. P. Hopkins, Chief Regional Officer, Southern Region; H. L. Smedley, formerly Legal Adviser & Solicitor; E. G. Marsden, Secretary; General Sir Daril Watson, Member; Mr. K. W. C. Grand, Chief Regional Officer, Western Region; Sir Herbert H. Merrett, Part-time Member; Messrs. V. M. Barrington-Ward, Member; G. Morton, formerly Chief Financial Officer; Sir Eustace Missenden; Messrs. R. A. Riddles, Member; John Elliot, Chairman; C. K. Bird, Chief Regional Officer, Eastern Region; V. Radford, Chief Financial Officer; W. P. Allen, Member; H. A. Short, Chief Regional Officer, North Eastern Region; David Blee, Member; J. C. L. Train, Member



## British Railways Summer Services

*Many accelerations on last summer schedules, "Festival" expresses composed of new standard stock, and additional buffet and sleeping car services*

British Railways summer schedules this year will operate from June 18 until September 23. Although the starting date is two or three weeks later than in previous years relief trains will be run as necessary at weekends to cater for early holiday traffic. The finishing date is about the same as in recent years, though some expresses will finish on September 1 or 8, but here again relief trains for returning holiday-makers will be run where justified.

The average weekly mileage to be run by passenger trains will be 4,300,000—about 11,000 miles less than last summer but 340,000 miles each week more than in the present timetables. A saving of 57,000 miles a week has been achieved by the closing of certain branch lines, and the withdrawal of poorly patronised trains; all but 11,000 miles of this will be absorbed by running additional holiday trains.

### Additional Services

A feature of the services will be additional trains at weekends. There will be 23 new cross-country services providing weekend travel between industrial centres and holiday resorts, such as Sheffield-Newquay; Reading-Margate; Birmingham-Portsmouth; Bradford-Poole; Barnsley-Skegness; and Manchester-Yarmouth. There will be many new services on main line routes between London and such towns as Nottingham, Leicester, Folkestone, Paignton, Swansea, Wolverhampton, Newcastle, Clacton, Norwich, and Cromer, and some pre-war services (among them 24 important services) will be restored for the first time. Many trains run as reliefs last summer are to run regularly this year and will appear in the public timetables, totalling well over 100 additional regular long-distance services. Special late trains will be run from London to Kent and the south coast during the Festival of Britain.

### Accelerations

Compared with last summer 153 trains will be speeded up by from 10 to 69 min. They include:—

Train	Acceleration
The "Royal Scot" 10 a.m. Euston to Glasgow ... .. 10 a.m. Glasgow to Euston ... ..	25 min. 13 min.
The "Flying Scotsman" 10 a.m. King's Cross to Edinburgh ... .. 10 a.m. Edinburgh to Kings Cross ... ..	16 min. 22 min.
The "Capitals Limited" 9.30 a.m. Kings Cross to Edinburgh ... .. 9.45 a.m. Edinburgh to Kings Cross ... ..	20 min. 25 min.
The "Queen of Scots Pullman" 12 noon King's Cross to Glasgow ... .. 10.50 a.m. Glasgow to Kings Cross ... ..	26 min. 25 min.
The "Heart of Midlothian" 2 p.m. King's Cross to Edinburgh ... .. 2 p.m. Edinburgh to Kings Cross ... ..	12 min. 10 min.
The "North Briton" 8.55 a.m. Leeds to Glasgow ... .. 4 p.m. Glasgow to Leeds ... ..	14 min. 12 min.

Ten trains between London and Birmingham will perform the journey in 2 hr. 10 min. compared with one train at present. Many trains between London and Clacton, Norwich and Cromer will be accelerated by up to an hour as a result of the use of new standard locomotives, elimination of stops, and recasting of the service.

To provide better connections or more convenient departure times for the public, many trains will leave at slightly altered times. This will also bring additional services with few exceptions into the standard

departure time arrangement. Examples of these are:—

	Departures at
Birmingham—Euston ... ..	30 min. past the hour
Euston—Manchester ... ..	45 min. " "
Manchester—St. Pancras ... ..	" " at the hour
Euston—Liverpool ... ..	30 min. past the hour
St. Pancras—St. Albans ... ..	20 min. " "
St. Albans—St. Pancras ... ..	" " at the hour
Southport—Manchester ... ..	" " at the hour
Manchester—Southport ... ..	" " at the hour
London—Norwich ... ..	30 min. past the hour
Norwich—London ... ..	45 min. " "
Liverpool Street—Southend ... ..	50 min. " "

### Non-Stop Runs

Additional non-stop runs include:—

Service	Non-stop between
12.30 p.m. Euston—Liverpool ... ..	Euston—Liverpool, 193½ miles
9.50 a.m. Paddington—Paignton (Sats.) ... ..	Paddington—Newton Abbot, 193½ miles
3.20 p.m. Paddington—Kingswear (Sats.) ... ..	Paddington—Dawlish, 185½ miles
10.40 a.m. Paddington—Penzance (Suns.) ... ..	Paddington—Exeter, 173 miles
8.40 a.m. Paddington—Swansea ... ..	Paddington—Cardiff, 145 miles
7.45 a.m. Derby—St. Pancras ... ..	Nottingham—St. Pancras, 123½ miles
Victoria—Brighton (eight additional trains)	Victoria—Brighton, 51 miles

### Suburbs—Seaside Through Trains

The arrangement for certain long-distance trains to call at suburban stations (saving passengers the trouble of journeying to the termini), which proved popular last year, is being extended. Over 3,000 stops a week will be made by main line trains at suburban stations.

### "Festival" Expresses

Seven "Festival of Britain" expresses composed entirely of new standard all-steel coaches are being introduced (in advance of the summer timetable). They are:—

The "Royal Scot" 10 a.m. Euston to Glasgow Central 10 a.m. Glasgow Central to Euston	The "Red Rose" 12.30 p.m. Euston to Liverpool Lime Street 5.25 p.m. Liverpool Lime Street to Euston
The "Heart of Midlothian" 2 p.m. Kings Cross to York and Edinburgh Waverley 2 p.m. Edinburgh Waverley to York and Kings Cross	The "Merchant Venturer" 1.15 a.m. Paddington to Bath and Bristol 5.25 p.m. Bristol (5.47 p.m. Bath) to Paddington
The "William Shakespeare" 10.10 a.m. Paddington to Wolverhampton and Stratford-on-Avon 7.23 p.m. Wolverhampton (7.35 p.m. Stratford-on-Avon) to Paddington	The "Royal Wessex" 7.38 a.m. Weymouth (8.20 a.m. Bournemouth West) to Waterloo 4.35 p.m. Waterloo to Bournemouth and Weymouth
The "Norfolkman" 10 a.m. Liverpool Street to Ipswich and Norwich 5 p.m. Norwich to Ipswich and Liverpool Street.	

The second, fourth, fifth, and sixth of these are new trains.

A new "Golden Arrow" train is being built for the 11 a.m. service from London (Victoria) to Dover, for Paris. The stock will consist of new Pullman cars throughout embodying the latest in interior decoration and also providing a new Trianon Bar.

In the summer timetable, new or revived names will be given to:—

10.30 a.m. Euston to Liverpool 2.10 p.m. Liverpool to Euston 7.55 a.m. and 3.5 p.m. Sats. Victoria to Ramsgate 11.15 a.m. and 6.15 p.m. Sats. Ramsgate to Victoria 11.30 a.m. (Sats. excepted) Victoria to Ramsgate and Canterbury 4.55 p.m. Ramsgate (5.30 p.m. Canterbury) (Sats. excepted) to Victoria 6.15 p.m. (Suns.) Ramsgate to Victoria 11.30 a.m. (Suns.) Victoria to Ramsgate	The "Manxman" The "Kentish Belle" (Pullman) (formerly "Thanet Belle")
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12 noon Waterloo to Ilfracombe 12 noon Ilfracombe to Waterloo 9.5 a.m. Paddington to Bristol 4.15 p.m. (1.50 p.m. Sats.) Bristol to Paddington 10.50 a.m. Sats. Paddington to Aberystwyth 9.30 a.m. Sats. Aberystwyth to Paddington	The "Devon Belle" (Pullman) The "Bristolian" The "Cambrian Coast Express"
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### Restaurant and Sleeping Car Services

The number of restaurant car services (3,223 per week) to be provided in conjunction with the Hotels Executive will be about the same as last year, but there will be 110 more buffet car services each week and 16 more trains with Pullman cars.

Twelve additional sleeping car services will be run each week. The maximum demand for sleeping berths is on Friday nights when 226 cars will be in operation, compared with 168 before the war.

Twenty-one third class sleeping cars of new design, accommodating two passengers to a compartment, are being built this year. It is hoped to have the first in service between London and the North of England and Scotland by June 18.

For the first time since the war passengers have this year been able to reserve seats from January 1 for any date during the year. This summer there will be 768 trains on weekdays, 1,084 on Saturdays and 323 on Sundays on which seats can be reserved. (This compares with 751, 963 and 316 last summer).

### Holiday Runabout Tickets

Runabout tickets operate this year from April 29 to October 31 in 75 districts, giving unlimited travel varying from five to seven days in selected holiday areas. This year, for the first time, those issued for seven-day periods will be available for travel starting any day of the week. Tickets covering new districts will be introduced.

All existing cheap fare facilities will be maintained. Tickets at special rates for dogs and bicycles are also obtainable.

The Caernarvon-Llanberis branch will be opened for excursions, and the Apple-dore-New Romney and Exmouth-Tipton St. Johns branches, and the halts between Rye and Hastings, normally closed on Sundays, will be opened on Sundays in summer.

### Improved Steamship Services

For the first time since the war the popular 4.30 p.m. service from London to the Continent will run daily from June 30 to September 9 inclusive and give a connection for Paris, reached at 11.20 p.m. A railcar will run from Boulogne to Paris in 2 hr. 37 min. for this service.

The new 3,200-ton m.v. *Norfolk Ferry* will operate on the Harwich-Zeebrugge train ferry cargo service, giving increased services for exports and imports in through wagons between Britain and the Continent. A third motor vessel, the 830-ton *Shanklin* will replace the former paddle steamer of the same name on the Portsmouth-Ryde service, giving better and increased passenger accommodation.

The s.s. *Duke of York*, after conversion to oil fuel, and additions and improvements to passenger accommodation, will go into service on the Holyhead-Dun Laoghaire route from July 3 to September 18. The s.s. *Princess Maud* will oper-

ate from Southampton to provide an increased service on the St. Malo route.

On the Holyhead route the motor ships *Cambria* and *Hibernia* will have "anti-roll" stabilisers (as on Southern Region ships *Invicta* and *Falaise*) fitted in time for the summer service, giving more comfortable passages in rough weather. Improved gangways of an entirely new type will be introduced at Holyhead: the gangways and connecting stairways will be adjusted electrically so that the gangways are level at all states of the tide.

The following services, which operated last summer, will be restored:—

9 a.m. (Daily) Victoria—Folkestone—Boulogne  
 7.30 p.m. (Daily) Victoria—Dover—Ostend  
 4.30 p.m. (Daily) Victoria—Folkestone—Boulogne  
 11 p.m. (Fri.) Victoria—Dover—Ostend  
 12.30 a.m. (Mon.) Ostend—Dover—Victoria  
 10 a.m. (Daily) Boulogne—Folkestone—Victoria  
 10 a.m. (Daily) Ostend—Dover—Victoria  
 6.15 p.m. (Daily) Boulogne—Folkestone—Victoria  
 6.35 a.m. (Sat.) Victoria—Newhaven—Dieppe  
 7.20 p.m. (Tue., Thu. and Sat.) Victoria—Newhaven—Dieppe  
 7.30 a.m. (Tue., Thu. and Sat.) Dieppe—Newhaven—Victoria  
 12.30 p.m. (Sun.) Dieppe—Newhaven—Victoria  
 9.40 p.m. (Sun.) Belfast—Heysham

\* Daily July 28 to September 4

New Saturday services will be: 7 a.m., Fishguard-Rosslare; 10.15 a.m., Ardrossan-Brodick; and 11.30 a.m., Brodick-Fairlie. The first will run on two Saturdays only, and the second and third on four Saturdays only.

#### Rolling Stock

There will be approximately 550 more coaches in service this summer than last summer. Altogether some 42,000 coaches will be available, giving, for the first time since the war, the same number of seats as in 1939. By June 18, some 240 of the new standard carriages, as well as 10 new standard kitchen cars (the largest yet built on British Railways) will be in service. It is expected that by the end of the year 920 of them will have been completed. About 30 new standard locomotives will also be in service by the time the summer timetables come into operation. Altogether 122 standard locomotives are scheduled to be completed by the end of the year and new locomotives will come into traffic week by week.

#### Track Renewal

More track will be completely or partially relaid this year than before the war. The 1951 programme covers 1,973 miles; that for 1938 was for 1,934 miles. So far this year 409 miles of track have been completed—130 miles with new standard flat-bottom rails. Since the flat-bottom rails were introduced about 1,700 miles of track have been laid in with them.

#### Staff

Since January 1, 1948, the staff of British Railways has been reduced by over 50,000, and 599,000 persons are employed. Although there has been this overall reduction in staff, there are, in some areas, serious shortages of shunters, signalmen, guards, footplate staff, permanent way men, carriage cleaners, and other grades.

#### REPAIR WORK ON LONDON MIDLAND REGION.

The installation of new drains and new water troughs, and the laying of ½-mile of new track at Newbold, near Rugby, are being carried out by the London Midland Region during the next two months. During the work, trains will stop to take water from the tanks at Blisworth, Rugby, or Nuneaton.

## Cold Cathode Lighting in a Railway Coach

*London Midland Region restaurant car with the first installation of its kind on British Railways*

Soon after the war several passenger vehicles on the main lines now constituting British Railways were equipped with fluorescent lighting using 2-ft. lamps of the hot cathode type. An alternative fluorescent lighting system, however, is to employ cold cathode tubes, which have certain advantages for railway applications and have been adopted to some extent overseas for this purpose. In conjunction with the London Midland Region of British Railways, the General Electric Co. Ltd. recently undertook the development of a cold cathode installation suitable for coaches with the standard British 24-V. d.c. lighting system, and the first vehicle equipped in this way went into traffic on the L.M.R. between St. Pancras and Derby on April 23.

to be planned within the capacity of the existing 24-V. d.c. carriage installation and a motor-alternator set to provide a suitable supply for the cold cathode tubes has been developed by the Electro Dynamic Construction Co. Ltd. The machine has stable voltage output characteristics under the different input terminal voltage conditions encountered when the battery is charged or discharged. This result has been achieved entirely by the electrical design of the machine and no voltage regulator is used. The a.c. output is 110 V., 400 cycles, this frequency being already widely adopted for fluorescent lighting in transport vehicles and aircraft since it enables small and lightweight transformers and capacitors to be used in the lamp circuits.

The car is divided into smoking and



*First class restaurant car, London Midland Region, equipped with cold cathode fluorescent lighting by the G.E.C.*

The coach in which this lighting has been installed is a first class restaurant car. In a vehicle of this type, the quality of the lighting is of particular importance in order that food and drink, to say nothing of the complexions of the diners, may be seen with a colour rendering similar to that which the tungsten filament lamp has made familiar. In a cold cathode installation gold colour tubes can be combined with white to impart a warm tone comparable with the effect given by the red rays emitted by tungsten lighting. Colour combinations of this type have been used successfully in a number of important liner installations carried out by this firm in recent years.

#### Life of Cold Cathode Tubes

Since the first fluorescent lighting installations were made in British rolling stock, new hot cathode fluorescent lamp colours have been developed which compensate for the deficiency of red light from the earlier types. Cold cathode tubes, however, have the further advantage of long life. In railway terms, the life of the tubes should extend over four years of coach service, which consideration was a major factor.

The new restaurant car lighting has had

non-smoking sections, and in each section the cold cathode tubes are mounted in a continuous triple row along the centre of the ceiling, the two outer tubes being warm white and the centre ones gold. They are contained in fittings 31 ft. long in the smoking compartment, and in the non-smoking section 13 ft. 6 in. long, each consisting of a sectionalised reeded Perspex enclosure with satin silver decorative end pieces and covers of similar material and finish at the junctions of the Perspex sections.

Two lengths of cold cathode tubing are used, 7 ft. 10 in. in the smoking and 6 ft. 10 in. in the non-smoking section. The transformers, one for each tube, are installed between the ceiling and the roof of the coach.

Any tube can be removed by taking off the corresponding section of the Perspex enclosure, and interlocks incorporated with the covers ensure that the supply is cut off before access to the tubes is possible. The switching arrangements enable full or half illumination to be used, the latter illumination being suitable for use during cleaning or other maintenance periods when the coach is at rest, thus reducing the load on the battery.

## Reorganisation of C.N.R. Financial Structure

### *Recommendations of the Royal Commission on Transportation which rejects company's proposals*

A financial reorganisation intended to restore the debt-burdened Canadian National Railways to solvency is one of the recommendations of the Canadian Royal Commission on Transportation. The commission largely rejected a C.N.R.-sponsored \$1,000 million plan for recapitalisation, and devised a scheme of its own which it said should give the undertaking a stable capital structure.

The plan would greatly reduce the deficit-producing fixed charges of the C.N.R. though not to the extent of \$31,000,000 a year, as sought by the company's president, Mr. Donald Gordon, in a submission last year. The commission's plan would leave the company obliged to pay interest charges on its government debt in surplus years; the company's plan would have improved its position by about \$31,000,000 every year with no interest at all paid to the government. The commission's proposals would free the company, however, of the deficit on its Newfoundland services, estimated at about \$4,000,000 a year, and also would permit it to retain part of any annual surplus which now is turned over wholly to the federal treasury.

The original scheme of the C.N.R. had been fought by the Canadian Pacific Railway on the ground that it might eventually endanger its financial standing. The commission said its revised plan would give the Canadian Pacific the protection to which it is entitled. It threw out a proposal of the C.N.R. that the government set up for it a capital fund of \$300,000,000 bearing 3 per cent. interest in recognition of the government's indebtedness to the company in assuming the burden of unproductive and debt-laden lines.

The government-held C.N.R. debt of \$734,000,000 would be converted from fixed-interest securities to income bonds. The fixed-interest provision now makes a demand of about \$22,000,000 a year on the annual revenues of the C.N.R. The income bonds would bear 3 per cent. interest—also about \$22,000,000—but this would be payable only in years when it was earned. If the company did not earn enough to cover it, the unpaid balance would not be regarded as deficit and would not be carried over to next year.

The C.N.R. fixed-interest charges—now \$46,000,000 a year—would be reduced to \$24,000,000, the amount owing on securities held by the general public.

### **Other Recommendations**

Other recommendations of the commission for settling the finances of the C.N.R. were:

1. After payment of its \$24,303,000-a-year interest charges on the debt held by the public, the company would be allowed to retain from annual earnings a reserve not more than the lesser of (a) one-third of the income after paying all charges before interest, or (b) the remainder of the income after paying interest on the publicly-held debt. On this basis, if the C.N.R. had net income (before interest) of \$50,000,000, its allowable surplus would be \$16,666,000. On net income of \$25,000,000, the surplus would be \$697,000. Under the Canadian National's plan, the surpluses would be, respectively, \$25,697,000 and \$697,000.

2. After provision for interest on the public debt and for surplus, the com-

pany would pay 3 per cent. interest on the income bonds or, if it did not have enough left for that, turn over its remaining balance to the government.

3. Losses in any single year would be charged against any built-up reserves. If the reserves were not enough, the government would make up the balance.

In commenting on the plan of the C.N.R., the commission said the company had not established that proposed fixed charges of \$15,000,000—which would remain after a reduction of \$31,000,000 had been made—were reasonable in relation to the company's prospective earnings. It was not practicable or desirable, the com-

mission said, for the government-owned C.N.R. to have a capital structure and fixed charges on the same basis as the C.P.R. The Canadian National, however, had established a case for some reduction in its fixed charges, but the commission considered its own remedies better adapted to meet its needs.

With the proposed new arrangement, the C.N.R. should find that freight rates established on the basis of the financial needs of the Canadian Pacific—the "yardstick" line for rate-making—are more than enough to pay interest on its debt to the public.

If the recommendations were carried out and good judgment was used by the C.N.R. management in undertaking capital and other expenditures, the commission said, there was no reason why the railway again should be burdened by excessive fixed charges.

## Developments on British Railways under Nationalisation

### *Mr. A. E. Hammett's paper on three years of technical and commercial progress*

Mr. A. E. Hammett, Commercial Superintendent, London Midland Region, in the course of a paper to the Carlisle & District Transport Club on April 20, dealt with the technical and commercial progress made by British Railways during the past three years.

Before the war, said Mr. Hammett, the four main-line railway companies preserved their individual characteristics, not only in their policy and day-to-day operation of their lines, but in planning and development of equipment and facilities. There was, of course, collaboration on common causes where a united front was a necessity, but at the same time, each company naturally pursued the policy most suited to its own needs.

On the outbreak of war, the Government took control of all internal transport services, and, for the co-ordinated direction of the railways, including the London Passenger Transport Board, the Minister of War Transport appointed the Railway Executive Committee the principal function of which was to act as adviser to, and agent for, the Minister. The Committee continued to function until the end of 1947 when, under the Transport Act, it was replaced by the British Transport Commission. The door was opened wide for the fullest measure of integration both in regard to policy and practice within the Executives themselves and between them, and consequently they found that in every branch of work performed by the Railway Executive today the means existed for closer co-operation and consultation at all levels.

The questions one naturally asked were, "How had unity of outlook been developed and what had been achieved?" He proposed to deal with technical and commercial progress separately, although it would be appreciated how interdependent they were, in fact, when trying to assess the value of either.

It was the intention of the Railway Executive to pursue a policy of standardisation for future locomotive types under a scheme that envisages no more than twelve standard types for all classes of work, and progress was also being made in the direction of the inter-Regional day-to-day depot repair of locomotives. The resources of all the railway workshops are

used for maintenance and repairs in the common interest of all Regions. The resultant improvements in the percentage of locomotives out of service for repair represented a reduction from 18.3 at the end of 1938 to 16.2 at the end of 1950. Similar progress had been made in repairs to carriages and wagons.

A policy of through working of locomotives between Regions had resulted in considerable economies in locomotives and crews and further savings would be obtained. Through working was particularly helpful in the case of excursion trains which worked from one Region to another. The merging of locomotive depots under separate Regional control at common points was also being developed. The standardisation of passenger carriages had also been agreed. The standardisation of goods and mineral wagons was being developed by a committee set up by the Railway Executive, and underframes and running gear would be standardised to a high degree on open, covered, and mineral wagons. In addition to the ordinary covered type of wagon a vehicle incorporating shock absorbing features had been designed on standard lines similar to that developed by the former L.M.S.R.

Among other types of revenue-earning vehicles for which uniform standards had been agreed were 20-ton goods brake vans, 13-ton low-side wagons, 13-ton sand wagons, 16-ton steel constructed wagons, 8-ton cattle wagons, 13-ton medium goods wagons, 12-ton pipe wagons, 12-ton container wagons, 22-ton plate wagons, bogie bolster wagons (various capacities), and 8-ton banana vans. Each had been selected from the best existing Regional designs with improvements based on experience.

In January, 1949, a standard flat-bottom rail was introduced throughout the British Railways. The heavier of the two standard flat-bottom rails would be 59 per cent. stronger vertically and 136 per cent. stronger laterally than the 95-lb. bull-head rail hitherto standard. The ever-increasing weight of passenger vehicles has made the changeover necessary. The new track would cost more to install, but, in effect, the economic justification for the decision to adopt the flat-bottom rail is economy in maintenance at the expense of first cost.

Times had not been propitious for large-scale projects, such as electrification



schemes, but a survey of this kind would not be complete without mentioning the electrification of the suburban lines between Liverpool Street and Sheffield, over which services were inaugurated on September 26, 1949, and the scheme initiated by the Eastern Region, and now in progress, for electrification for all traffic between Manchester, Sheffield, and Wath.

The important function of research had been recognised by the establishment of a Technical & Operational Research Department by the Railway Executive. This organisation would have seven divisions covering chemistry, engineering, metallurgy, physics, textiles, protective coatings, and operational research, and would combine and develop the laboratory resources of the former railway companies.

### Commercial Development

The former railway companies were in the forefront of commercial enterprise. Their resources were thrown into the war effort unstintingly for six years and thereafter their energies were bent to the task of rehabilitation. This task embraced on the freight side the mechanisation of cartage vehicles and the provision of a network of zonal collection and delivery services. Complementary to this were high-speed freight rail services, speeding up important flows of traffic, an interesting example of which was a new Sheffield-Liverpool freight service for export traffic.

The modernisation of terminal facilities and handling equipment was actively proceeding in consultation with traders and the staff, and much could be said about the development of mechanical appliances such as wagon unloading machines, continuous belts, palletisation, and so on. Nor was the field being neglected of special facilities for particular traffics on which much pioneering work was done before the war. The extension of specialised railway services for the carriage, under refrigerated conditions, of perishable traffics, and the transport of liquids in bulk proceeded apace.

An important development from which the trader must derive benefit was the attention which was being given to the review of railway routes common to two or more of the former companies with the object of improving transit times. Examples of what had been done were re-routing of traffic between Middlesbrough and South Wales to avoid a congested transfer point at Banbury, and of special interest to Carlisle, new arrangements for routing traffic between Aberdeen, Dundee, Perth, and London, which took it out of Greenhill and Carlisle marshalling yards and eased congestion on the Law Junction-Carlisle section.

In the service of the public much was going on to improve the facilities and amenities of passenger travel. Train schedules had already been speeded up to shorten journey times, and with the progressive overtaking of arrears of renewal of permanent way, motive power and rolling stock this process would continue, given a reasonable period of normal conditions.

British Railways were very conscious of the standards of cleanliness and appearance of rolling stock and premises expected by the public. A great deal was being done to achieve these standards by the co-operation of staff and by every expedient it is possible to press into use. The public could help immensely by using the trains and stations as they would use their own furniture.

The British Transport Commission had stated that rail, road, and inland waterway freight services should be regarded and developed much more as complementary to each other and much less as rival forms of

transport. This was the cornerstone of a structure that was being built to serve the needs of industry. Its framework was the principle that the respective forms of transport provided services for which they were best suited in the interests of efficiency and economy.

The problem of welding the transport system into an effective unified "servant" of industry was a vast one, and would involve some changes in the domestic arrangements of the railways, such as the transfer of cartage and zonal road working to the road transport side of the business and the development of much joint terminal and other operations. Machinery for close collaboration between the Executives was already working intensively.

## Questions in Parliament

### Railway Charges

Mr. A. Edward Davies (North Stoke-upon-Trent—Lab.) on April 16 asked the Minister of Transport whether he would take steps to relieve the railway industry of the many legislative anomalies in matters of charges and services which handicapped it in competition with other forms of transport and prevent its earning a proper revenue and which for other reasons were out of date.

Mr. Alfred Barnes stated in a written answer: The Charges Schemes to be settled under Part V of the Transport Act will govern generally the charges and other terms and conditions applicable to the Commission's railway services and facilities, notwithstanding any previous statutory provisions of the kind Mr. Davies has in mind. Accordingly, until the schemes have been settled it is not possible to consider whether any legislative action is desirable.

### Cost of Consultative Committees

Sir Waldron Smithers (Orpington—C.) on April 9 asked the Minister of Transport what was the annual cost in staff, office accommodation, travelling and other expenses of the Central Transport Consultative Committee for Great Britain, and particularly the number of staff employed and the total of their salaries.

Mr. Alfred Barnes, in a written answer, stated: Separate figures for the Central Transport Consultative Committee for Great Britain are not available. The cost to the B.T.C. in staff, office accommodation, travelling, and other expenses of the Central Transport Consultative Committee and the Transport Users Consultative Committee for London together was, for the year 1950, £6,228, of which £4,413 was for salaries of the secretary and staff of three who act for both committees. Their remuneration covers also certain accountancy work for the other Consultative Committees.

### Railway Coal Economies

Captain L. D. Gammans (Hornsey—C.) on April 16 asked the Minister of Fuel & Power what was the estimated saving of coal made as a result of the cuts in the railway service in the first quarter of this year.

Mr. Philip Noel-Baker stated in a written answer: It is not possible to give a quantitative estimate of the savings secured during the period in which the coal allocation to the railways was cut by 9,500 tons a week. That saving was, however, considerable, and I am most grateful to the Minister of Transport and to the Railway Executive for the help they

gave by agreeing to this temporary reduction in railway coal supplies. It was of great value, for it made it possible to increase supplies sent to the house coal market.

### Cost of Railway Travel Warrants

Major John Morrison (Salisbury—C.) on April 16 asked the Minister of Defence what was the total amount paid to the British Transport Commission for free railway travel warrants issued to Service personnel on leave in 1950, and whether the Service Departments paid full-fare rates for these vouchers.

Mr. E. Shinwell (Minister of Defence): It is estimated that the cost of Service leave travel at public expense during 1950-51 amounted to approximately £2,400,000. The exact amount could not be ascertained without a disproportionate expenditure of time and labour, since payment is made to the Railway Regions for leave and duty travel together. In common with all other Service traffic this is paid for at special rates.

## Contracts & Tenders

The 5½-mile Rimutaka tunnel on the Wellington-Wairarapa Line, New Zealand Government Railways, is to be driven by Morrison-Knudson Limited, San Francisco, U.S.A., final details of the contract have not yet been worked out. Preliminary work on the tunnel has almost been completed by the New Zealand Ministry of Works.

In addition to the work involved in this contract, the company's Traction Contracts Department at Kirkby, near Liverpool, is at present concerned in British Railways Manchester and Sheffield electrification, and important Brazilian contracts are in hand covering the supply and installation of overhead equipment for the electrification of sections of the Estrada de Ferro Santos a Jundiai, Brazil.

A contract valued at approximately £3,000,000 for the design, supply and installation of overhead equipment for the electrification of the section between Parramatta and Lithgow of the New South Wales Government Railways, has been awarded to British Insulated Callender's Construction Co. Ltd. (a member of the B.I.C.C. Group). The contract covers the electrification of a total of 236 miles of track, and the project is stated to be essential for the efficient haulage of heavy coal freight trains over this arduous mountain route.

The Board of Trade, Commercial Relations & Exports Department, Special Register Information Service stated recently that the Commercial Secretary at the British Embassy, Brussels, has reported that the Belgian State Railways have issued a call for tenders (No. 2651/452) for the supply of electro-mechanical signalling equipment. Tenders should reach the Societe Nationale des Chemins de Fer Belges, Direction Du Material Et des Achats-Bureau 26-51 Section 9, 17, rue de Louvain, Brussels, before May 23, 1951.

A copy of the tender documents (in French) is available for inspection by representatives of interested United Kingdom manufacturers at the Commercial Relations & Exports Department (Industries Branch), Board of Trade, Millbank, London, S.W.1. A second copy is available for loan to United Kingdom manufacturers in order of written application to the Department. Reference C.R.E. (IB) 59445/51 should be quoted.

## Notes and News

**Senior Draughtsman Required.**—A senior draughtsman is required in the Midlands. Experience with British Railways an advantage. See Official Notices on page 515.

**Junior Traffic Officials Required.**—Applications are invited for the posts of junior traffic officials, aged about 25, single, required for service on railways in Peru and Bolivia. See Official Notices on page 515.

**Senior Designer Required.**—British Insulated Callender's Cables Limited require a senior designer at its Prescott works, for the electro-mechanical design of overhead equipment for trolleybus and railway traction. See Official Notices on page 515.

**Junior Assistant Sectional Engineer or Sectional Engineer Required.**—A junior assistant sectional engineer or sectional engineer, between 25 and 35 years of age, is required for a British railway company operating in Chile and Bolivia. See Official Notices on page 515.

**London Transport Executive.**—A general technical assistant, fully experienced in process planning, estimating, rate fixing and time study, is required in the department of the Chief Mechanical Engineer (Railways), Acton works of the London Transport Executive. See Official Notices on page 515.

**Festival Arrangements at South Kensington Station.**—London Transport has installed two new ticket offices in the Piccadilly Line booking hall at South Kensington Station. One office, now in use, replaces the former ticket office by the entrance to the lifts; the second will come into use during the Festival of Britain to handle visitors expected to use this im-

portant interchange point. Served by Piccadilly, District, and Circle lines, South Kensington Station will be linked by a special bus service to Battersea Park Pleasure Gardens and Fun Fair. Another Festival item at South Kensington Station is an exhibition of London Transport posters of the past 50 years staged in the subway between the station and the museums.

**Japanese Train Fire.**—On April 25 an electric train caught fire as it was entering Sakuragicho Station, Yokohama, Japanese Government Railways, as the result, it is stated, of an electric power cable touching the roof. The doors could not be opened in time, and 103 passengers in the first two coaches, including seven American soldiers, lost their lives.

**Gotthard Express Wrecked by Avalanche.**—The restaurant car chef was killed and eight other persons were injured when an avalanche swept part of a Milan-Zurich express off the line as it emerged from Stalvedro Tunnel between Ambri and Airolo, on the Gotthard route, on April 24. The engine, a van and the restaurant car were buried beneath masses of snow. All traffic on the line was temporarily suspended.

**Increase in Canadian Freight Rates Sought.**—Canadian railways have asked the Board of Transport Commissioners to sanction an increase of 14 per cent. in freight rates effective from June 1 amounting to about \$64,000,000 a year to cover the cost of a 40-hour week beginning on that date. It would also cover higher cost for materials and some wage increases apart from those obtained by the majority of workers by last year's strike. The application by the Railway Association of Canada offers alternatives: (1) a general 14 per cent. increase

except for the 10-20 per cent. coal increase; (2) a general 15 per cent. increase accompanied by exceptions on basic commodities. The Canadian Pacific Railway estimated that the shortened working week would cost it \$14,500,000 yearly.

**Institution of Electrical Engineers.**—The annual general meeting of the Institution of Electrical Engineers, Savoy Place, London, W.C.2, will be held at 5.30 p.m. on May 17, and will be for Corporate Members and Associates only.

**Mullard Electronic Products Limited: Change of Name.**—On May 1 the name of Mullard Electronic Products Limited was changed to Mullard Limited. The new name has been adopted in order to associate the company more closely with its trade mark "Mullard."

**Exhibits of Tubewrights Limited at B.I.F.**—Tubewrights Limited is displaying at the B.I.F., Castle Bromwich, a selection of its tubular steel fabricated products. The exhibits are grouped under five main headings: structural steelwork; mechanical handling equipment; agricultural equipment; lifting gear; and crowd and traffic control equipment. A 6 ft. x 120 ft. "Usk" footbridge, carrying a 12 in. pipe, with tubular piers and staircases, is shown on the outside stand.

**L.M.R. Orchestral Society.**—British Railways, London Midland Region, Orchestral Society is presenting the concert version of "Merrie England" at Friends House, Euston Road, on Tuesday, May 8. The Society will be supported by the augmented chorus from East Ham Music & Dramatic Society; Sixth Avenue Methodist Choir, Manor Park; and the Hemel Hempstead and the Putney Amateur Operatic Societies.

**Newton Victor Limited Exhibits at B.I.F.**

—The chief exhibit of Newton Victor Limited at the B.I.F. (Castle Bromwich section) is a complete mobile industrial x-ray unit suitable for the examination of castings, welded joints and other fabrications up to a thickness corresponding to 3 in. of steel. The unit, mounted on a robust chassis and running on pneumatic tyres may be used in any part of a works, shop or yard where electric power supply is available.

**Beyer, Peacock & Co. Ltd.**—The report of the directors of Beyer, Peacock & Co. Ltd. for the year ended December 30, 1950, shows a consolidated profit of £403,909, which, less tax, leaves a combined net profit for the year of £195,441 as compared with £147,706 for the previous twelve months. Deducting profits retained by subsidiaries, £34,929, there remains a net profit of £160,512, against £124,480, and to this must be added the amount of £48,154 brought forward from 1949, making an available total of £208,666. The directors recommend that this balance be applied to pay a dividend of 7½ per cent. on the ordinary shares, and in the payment of a bonus of 2½ per cent. on the ordinary shares, leaving £166,591, from which a sum of £125,000 is transferred to general reserve, leaving £41,591 to be carried forward.

**The Victaulic Co. Ltd. Exhibits at B.I.F.**—The Victaulic Co. Ltd. exhibits at the B.I.F., Castle Bromwich Section, include a full range of Victaulic flexible joints, Victaulic fittings, Viking Johnson couplings, Viking Johnson flange adaptors, Viking Johnson junior couplings and hose couplings. The sizes range from ½ in. to

## Presentation of Railway Executive Amateur Boxing Shield



Mr. John Elliot, Chairman of the Railway Executive, presenting the Railway Executive amateur boxing championship shield to Mr. H. A. Short, Chief Regional Officer, North Eastern Region (see paragraph in our April 27 issue)

## OFFICIAL NOTICES

## Situations Vacant

**JUNIOR Assistant Sectional Engineer or Sectional Engineer** required for British railway company operating Chile and Bolivia. Candidates should have passed Sections (a) and (b) of Institute of Civil Engineers' examination and have had some experience in maintenance and construction of track work, bridges and buildings. Aged about 25-35 years. Commencing salary £600-£750 p.a., according to qualifications and experience. Free quarters, passages, allowances, etc., provided. Applications with full particulars of qualifications and experience, and copies of any testimonials held to be sent to Box 4143, c/o CHARLES BARKER & SONS LTD., 31, Budge Row, London, E.C.4.

**SENIOR DESIGNER** required by British Insulated Callender's Cables Limited, at their Prescott works, for the electro-mechanical design of overhead equipment for trolleybus and railway traction. Permanent position with superannuation and bonus schemes after twelve months' probationary service. Salary £650 per annum. Applications giving details of qualifications and experience should be made in writing to the Staff Officer, B.I.C.C. LIMITED, Prescott, Lancs.

**LONDON TRANSPORT EXECUTIVE** require a General Technical Assistant fully experienced in process planning, estimating, rate fixing and time study in the department of the Chief Mechanical Engineer (Railways), Acton Works. Applicants should have a sound general and technical education to National Certificate standard. Specialised experience in electrical and mechanical equipment as applied to the repair and overhaul of railway rolling stock is desirable. Commencing salary up to £452 p.a., according to age, qualifications and experience, with prospects of advancement to £516 per annum, and additional increments for recognised educational qualifications. The appointment is subject to a medical examination. Upon completion of a satisfactory probationary period the selected applicant will be expected to join a contributory superannuation scheme. Applications giving full details of age, training, experience, and present salary, should be sent within 14 days of the appearance of this advertisement to the Staff Officer (F/EV.176), LONDON TRANSPORT EXECUTIVE, 55, Broadway, London, S.W.1. For acknowledgment enclose addressed envelope.

**JUNIOR Traffic Officials** with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

**SENIOR DRAUGHTSMAN** required in Midlands familiar with railway permanent way layouts, etc. Experience with British Railways an advantage. State age, experience, and salary required.—Box 66, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**WE** buy used or unserviceable Steel Files at good prices, in lots of 2 cwts. or more.—TROS. W. WARD LIMITED, R.S. Department, Albion Works, Sheffield.

**INTERNATIONAL RAILWAY ASSOCIATIONS.** Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

100 in. dia., and include joints for use on both steel and cast-iron pipes at pressures from zero to 1 ton per sq. in. The Viking Johnson coupling exhibit includes a set of samples demonstrating methods of completing bituminous lining for sizes 3 in. nominal bore and upwards.

**Road Haulage Association Luncheon.**—Viscount Swinton will be the principal guest at the Road Haulage Association annual luncheon, which is to be held at Grosvenor House, Park Lane, London, W.1., on May 23.

**Taltal Railway Co. Ltd., Tariff Rates Increase.**—The Taltal Railway Co. Ltd. announces that cabled advice has been received from its General Manager in Chile that a 35 per cent. increase in tariff rates excluding fuel oil has been authorised as from May 3.

**The "Festival" Express, U.T.A.**—The Ulster Transport Authority has given the name "Festival" to the 8.30 a.m. from Londonderry and the return train from Belfast at 5.25 p.m. It is the first complete train to be composed of the new rolling stock built in the Authority's own works.

**Railway Benevolent Institution.**—At a meeting of the board of the Railway Benevolent Institution on April 25, annuities were granted to 13 widows and ten members involving an additional liability of £381 8s. a year and two allowances for children costing £40 a year; 55 gratuities of £568 15s. were granted to meet cases of immediate necessity. Grants made from the casualty fund during March amounted to £516 14s. 6d.

**Compagnie Internationale des Wagons-Lits et des Grands Express Européens.**—A net profit of Belg. fr. 37,530,000 is reported for 1950 by the Compagnie Internationale des Wagon-Lits et des Grands Express Européens, to which must be added the carryover of fr. 1,730,000. The 1949 net profit amounted to fr. 48,090,000. As stated in our April 27 issue the company proposes unchanged dividends of fr. 5 net on preference shares and of fr. 4 net on ordinary shares.

**Higher Belgian Freight Charges.**—An agency message states that freight charges on the Belgian railways were increased by 7½ per cent. on May 1. A proposal to increase passenger fares by five per cent. was refused by the Belgian Government. State subsidies will not be increased. The Government has suggested that the railways introduce an economy plan to absorb

increased overheads. Higher overheads, according to the railways, will total 560,000,000 Belgian francs a year. They have been brought about by a recent five per cent. increase in wages and pensions and a rise in the cost of coal and other materials.

**Western Region Runabout Tickets.**—Holiday runabout tickets, which have in recent years been very popular, are again being issued by the Western Region of British Railways from April 29 to October 31. These tickets, which are available for one week in specified areas, are issued on any day and vary in price from 15s. to 22s. 6d. Areas covered include districts in Cornwall, Devon, Somerset, Hereford, Worcester, and Central and South Wales. Similar tickets are also issued for the conveyance of bicycles and dogs.

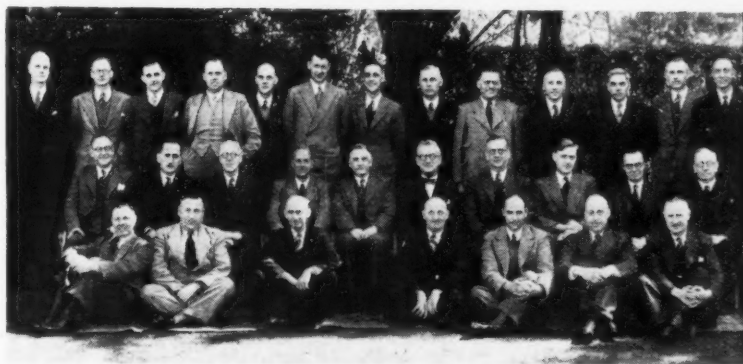
**Warning of Lower Steel Output.**—Mr. George Strauss, Minister of Supply, gave a warning of decreased steel output this year in a statement to the House of Commons on April 30. During the last six months, he said, the industry had used up about 1,000,000 tons of its stock of steel-making raw materials and stocks had been reduced to a dangerously low level. The intake of raw materials in 1950 had included more than 1,900,000 tons of scrap from Germany, but there was no prospect of obtaining anything like that

figure this year, although he hoped for some slight improvement in iron ore imports. The success of the present national scrap drive was therefore of supreme importance.

**Pressed Steel Company.**—This year the Pressed Steel Co. Ltd. is paying a final dividend of 12½ per cent., which makes 20 per cent., less tax, for 1950 on the £1,657,222 ordinary capital. For the previous year, the dividend was also 20 per cent., but only the final of 10 per cent. was paid on the capital as doubled by the 100 per cent. scrip bonus in November, 1949, when shareholders also received one £1 second preference for every £1 of ordinary stock. The preliminary statement shows that the net profit increased by £163,410 to £1,023,809.

**B.I.F.: Stewarts and Lloyds Limited Display.**—At the Castle Bromwich section of the British Industries Fair, Stewarts and Lloyds Limited, with subsidiary and associated companies, again exhibit a wide range of products. The Engineering Group features a section of a 72 in. sheathed and lined steel main into which five panels have been inserted, each containing a colour transparency illustrating stages in the manufacture, protection and laying of large diameter steel mains. In the principal stand a tubular steel building has been divided into 10 bays in which a

## Cartage and Terminal Supervisors Course at Woking



Mr. A. A. Harrison, Executive Officer (Road Transport), Railway Executive (centre), with Mr. E. W. Arkle, Commercial Superintendent, North Eastern Region (on his right) and Mr. F. J. Knight, Assistant Principal, Woking Staff Training College (on his left), at one of the recent Cartage and Terminal Supervisors Courses held at Woking (see our April 20 issue)



comprehensive range of the company's products is on view. They include steel tubes and fittings for the conveyance of steam, gas, air, water, and so on, examples of protective linings and sheathings; tubular steel coils; hot and cold rolled steel strip; oil country tubular goods including welding fittings; coal mining equipment; foundry and basic pig irons; iron and steel castings; and steel and tubeworks by-products.

**A. C. Wickman Limited at Canadian Trade Fair.**—A range of machines by A. C. Wickman Limited will be among the exhibits at the Canadian International Trade Fair to be held at Toronto between May 28 and June 8. All the machines concerned will be tooled for production and will be demonstrated during the run of the Fair.

**Bourne and Essendine Branch-Line Station.**—As from June 18 all train services will be withdrawn from Braceborough Spa Halt, Thurlby Station, and Wiltshire Crossing Halt on the Bourne-Essendine branch line of the Eastern Region. A local bus service will operate between Bourne and Peterborough and Bourne and Stamford, and station facilities will be available at Bourne and Essendine for parcels and merchandise traffic. Cartage services will be provided at Bourne.

**Increase in Early Season Tourist Traffic.**—A substantial increase in tourist traffic for the first quarter of 1951 was announced by Sir Alexander Maxwell, Chairman of the British Travel & Holidays Association, on April 30. It is estimated that during the first three months of the year 88,000 overseas visitors arrived in this country as compared with 78,000 for the first quarter of 1950. This was an increase of 12.5 per cent. Monthly statistics show that in March there were 27,390 foreign visitors, which is 17.1 per cent. more than the March figure last year, and it is estimated that there were in addition 11,000 visitors from Commonwealth and Empire countries, making an estimated total of 38,390 for the month. Visitors from the United States numbered 5,605 and American traffic for the month was 51 per cent. above the 1949 figure and no less than 111 per cent. more than the pre-war average for March.

## Forthcoming Meetings

- May 4 (Fri.).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, at 7.30 p.m. "Passenger Locomotives of the Caledonian Railway, 1895-1922," by Mr. Montague Smith.
- May 5 (Sat.).—Historical Model Railway Society, at the headquarters of the Stephenson Locomotive Society, 32, Russell Road, London, W.14, at 3 p.m. "The Isle of Wight Railways," by Mr. R. Day.
- May 5 (Sat.).—Permanent Way Institution, Manchester & Liverpool Section, joint visit with members of Notts & Derby Section to Crewe Railway Museum.
- May 8 (Tue.).—Institution of Civil Engineers, Great George Street, Westminster, S.W.1, at 5.30 p.m. "Pre-Stressed Concrete Applied to the Construction of Railway Bridges and Other Works," by Mr. Arthur Dean, Civil Engineer, North Eastern Region, British Railways.
- May 10 (Thu.).—Irish Railway Record Society, Photographic Display and Social Evening.

## Railway Stock Market

Although still active, there has been more caution in stock markets, where international news, and particularly the events in Persia, have had a restraining influence. The further flow of higher dividends has helped individual shares, and the prevailing view is that, although setbacks must be expected, industrial shares are more likely to rise than fall in the next few weeks. The large advance in Imperial Chemical group profits and the raising of the dividend from 10 per cent. to 12 per cent. has created a widespread feeling of confidence. Moreover, the revaluation of the I.C.I. manufacturing assets, revealing at £96,000,000 surplus which has been added to special reserves, attracted widespread attention. This big I.C.I. surplus has emphasised the extent to which the present-day value of assets is in excess of that at which they are carried in balance sheets of many companies; and this, it is argued, probably justifies higher market values for ordinary or equity shares.

There has been firmness in foreign rails, with revived speculative activity in United of Havana stocks, which put the 1906 debentures up to 18, although there has been no news of any fresh take-over developments. The good yield continued to bring in buyers for Antofagasta preference stock, which has further strengthened to 52; the ordinary stock was firm at 7½. Nitrate Rails kept at 23s. and Taltal shares were 17s. Leopoldina stocks continued quiet although current prices are generally below expected take-over levels. The ordinary eased to 10½, and the preference to 26½, while the 4 per cent. and 6½ per cent. debentures were 93½ and 139. Leopoldina Terminal 5 per cent. debentures were 93 and the ordinary units 1s. 3d. Mexican stocks reflected a little profit-taking after recent gains. Mexican Central "A" bonds eased to 62½ and National of Mexico 4½ per cent. non-assenteds were 41. Brazil Rail bonds were 90s. and San Paulo 10s. units changed hands around 14s. 7½d. There was only moderate business reported in Manila issues, reflecting the view that there are unlikely to be any fresh developments, and that the stocks have to be regarded mainly as a long-term speculative holding. The "A" debentures were 74 and the preference shares 7s. 1½d. In other directions La Guaira ordinary stock kept at 84½ and Bolivar "C" debentures were 58.

White Pass Yukon income debentures marked 87. Canadian Pacific, after their recent strength, eased to 57½, although they remained among the most active dollar stocks, helped by market hopes of higher dividend prospects.

Business in road transport shares was on a very small scale and they were easier inclined on the fear that mounting oil and other costs must react sharply on profits. Nevertheless the market remains hopeful that the majority of dividends will be maintained. Southdown were 100s. 7½d., West Riding 54s., and Lancashire Transport 58s. 9d., while Rhondda Transport changed hands around 47s. 6d.

After their revived strength in anticipation of the full results, Vickers eased to 53s. 7½d. and Cammell Laird 5s. units to 15s. 4½d., although the market remains hopeful of a special return for stockholders from nationalisation compensation for English Steel assets. Guest Keen were also an active feature on the possibility of a special return from compensation for steel assets; and the impending results are being awaited because of higher dividend hopes. At 59s., however, Guest Keen have not held best levels. T. W. Ward were firm at 73s. and B.S.A. have been favoured at over 44s. Imperial Chemical, at 51s. 7½d., have risen strongly on balance, but have not held all the rise which followed publication of the record results and higher dividend. The I.C.I. group net profits of over £31,000,000 are the highest ever reported by any British industrial company. Locomotive building and engineering shares have been firm generally helped partly by the Anglo-Argentine trade agreement. Hurst Nelson were 62s. Birmingham Carriage changed hands around 38s. Beyer Peacock were active around 33s. 9d., Vulcan Foundry 31s., North British Locomotive 19s. 1½d., and Gloucester Wagon 17s. 1½d., while Wagon Repairs 5s. shares strengthened up to 16s. Charles Roberts have been firm at 101s. 6d.

**NORTH EASTERN REGION CUP FINAL SPECIALS.**—For the F.A. Cup Final between Newcastle United and Blackpool, at Wembley on April 26, the North Eastern Region ran 18 special trains. The 16 trains which ran from Tyneside carried 7,675 passengers.

Traffic Table of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date	
				Total this year	Inc. or dec. compared with 1948-49		Total	Increase or decrease
							1949-50	
South & Cen. America	Antofagasta ...	811	20.4.51	£ 127,360 +	£ 56,030	16	£ 1,621,660	£ 627,460
	Costa Rica ...	281	Mar., 1951	c462,742	c528,918	39	c8,838,481	c1,242,019
	Dorada ...	70	Mar., 1951	34,235	14,231	13	108,108	18,363
	Inter. Ctl. Amer. ...	794	Feb., 1951	\$1,233,459	\$51,829	8	\$2,548,803	\$80,536
	Paraguay Cent. ...	274	20.4.51	£216,230 +	£37,310	42	£856,182	£246,406
	Peru Corp. ...	1,050	Mar., 1951	\$7,903,000	\$711,300	39	\$63,671,000	\$15,273,942
	" (Bolivian Section)	66	Mar., 1951	3s. 14,210,000	£s. 8,601,500	39	£s. 110,467,000	£s. 23,120,336
	Salvador ...	100	Feb., 1951	c244,000	c5,000	35	c1,327,000	c27,000
Taltal ...	154	Mar., 1951	\$2,091,357	\$308,104	39	\$14,683,148	\$2,461,284	
Canada	Canadian National† ...	23,473	Mar., 1951	17,554,000	2,599,000	13	47,640,000	8,750,000
	Canadian Pacific† ...	17,037	Mar., 1951	11,502,000	759,000	13	32,736,000	5,010,000
Various	Barsi Light* ...	167	Mar., 1951	33,150	3,420	52	350,745	3,225
	Egyptian Delta ...	607	10.10.50	18,245	1,296	28	319,911	24,005
	Gold Coast ...	536	Feb., 1951	277,776	42,991	48	2,852,499	303,619
	Mid. of W. Australia ...	277	Jan., 1951	41,990	7,585	31	277,213	65,652
	South Africa ...	13,347	7.4.51	1,892,119	422,781	1	1,892,119	422,781
	Victoria ...	4,744	Jan., 1951	1,990,981	9,278	31	—	—

\* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1